Textile World

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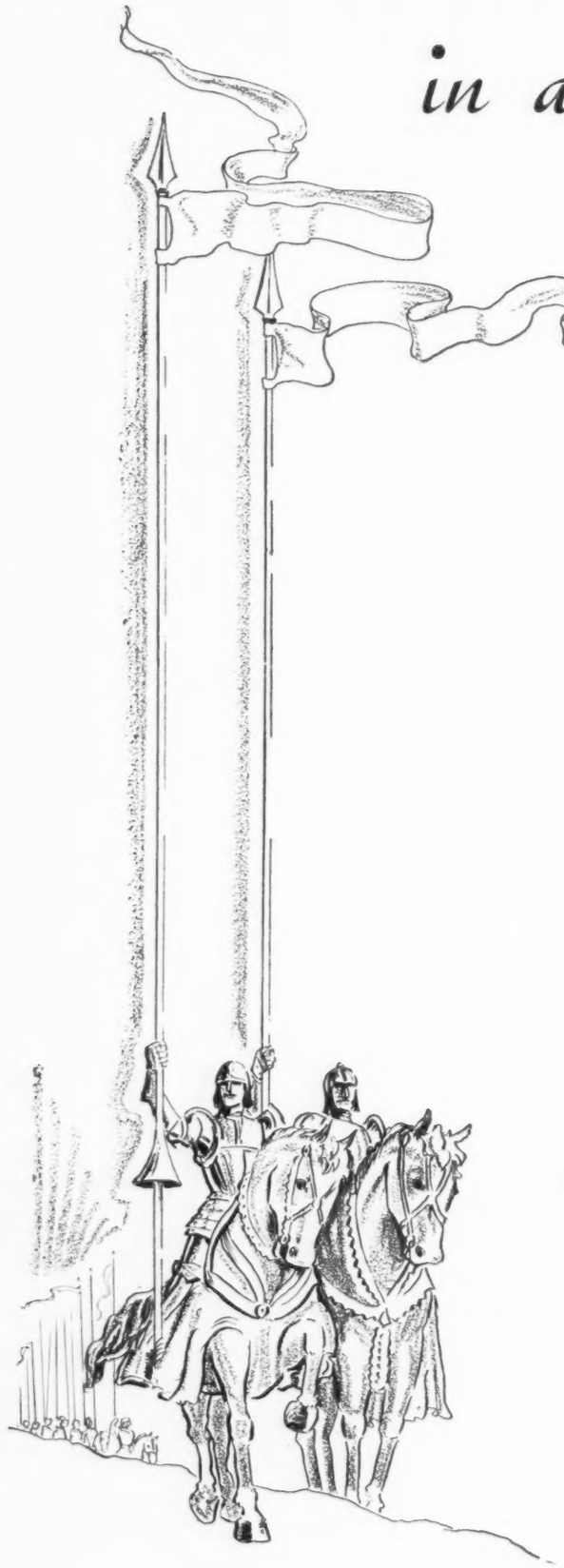
in a Common Cause



WE like to think of our customers and ourselves as cooperating in a common cause. ◆ ◆ This cause is to best serve the interests of those who manufacture and distribute the many fine products made of INDUSTRIAL yarns and fabrics. ◆ ◆ During the dark days of the depression we welded bonds of allegiance through following a policy of definite assistance to our customers by perfecting new products and backing them with constructive service, by aiding customers in winning broader markets and selling on a thoroughly profitable basis. ◆ ◆ Today in the changed picture, with people buying again, manufacturers and retailers find INDUSTRIAL'S policy of cooperation an even greater aid in commanding their full share of this growing market. By continuing to think of our customers and ourselves as cooperating in a common cause we naturally think in terms of profitable marketing for the users of our products.

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Textile World

May, 1934

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Editor: DOUGLAS G. WOOLF

". . . and Keep It Mended"

WE predict considerable moaning in textile circles this summer. This prediction is based on our expectation of a more than seasonal slump. Since moaning is not a profitable occupation, we are mentioning this unpleasant subject now so that, if there are any textile men who have not visualized the real possibility of an extremely dull summer, they can begin to think about it—and to plan to do something other than moan.

As usual, the reasoning which led up to our prognostication was not quite orthodox, from the standpoint of classical economists. To start with, there is the growing belief that business in general, at the conclusion of the current spring bulge, will encounter particularly bad going this summer, but will probably recover strongly in the fall. More specifically, we have felt that the rate at which mill sales of textile products have been proceeding during the last year and a half was due for a check. Then, too, there is the two-year-cycle theory in textiles—a theory at which we have occasionally poked fun in public, but which we really take quite seriously in private. . . . This is an off year.

More responsible than any of this, however, is a sort of a "feel" which we have gotten—or think we have gotten—in the industry. It's hard to explain—except to another reporter.

Of course, we may be wrong. That's the advantage of predicting on the pessimistic side. Even if you lose, you win.

▼

What to do about it?

Well, in the first place, don't get panicky. Textile manufacturers have lived through quite a few slumps in their time, and can stand another one.

Next, push hard for business—but not at the expense of a reasonable profit. Taking orders at a loss has been tried in this industry before. And how!

Finally, we hope that no extra strain will be put on the industry during this "digestive period." It would be detrimental to the interests of both employers and employees if prices were pushed any higher through increased costs, or if confidence were further impaired by governmental moves which could not be absorbed at this time.

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But there is still another thought in all this.

We agree entirely with those economists who anticipate a resumption of the recovery trend in the last quarter of the year. In fact, we think it has been demonstrated that recovery is definitely under way; an interruption this summer would have no long-term significance.

To be able to take full advantage of the effects of recovery, it is necessary that a company be as fit as its circumstances will permit.

A survey conducted by the Cotton Textile Code Authority indicates that that branch of the industry alone is a potential customer for $100,000,000 worth of capital goods equipment "conditioned on assurances to industry of the same constructive cooperation from the legislative branch as has characterized its relations with the NRA."

Last fall, we estimated an immediate potential demand for $200,000,000 worth of equipment for modernization purposes, for the textile industry as a whole. We think both estimates are conservative.

The sooner these needs are filled, the better for the future of the industry.

Consequently, our advice to the industry for this summer is: Keep your shirt on—and keep it mended!

The Editor Says:

IF there are any who still do not believe that recovery is under way in the textile industry, they should have attended the meetings of the American Cotton Manufacturers Association and the National Association of Hosiery Manufacturers, as well as the Knitting Arts Exhibition, last month.

Within two consecutive weeks, the new spirit in textiles was dramatically demonstrated.

An air of cheerfulness and of purposefulness pervaded each of those events. There was none of that defeatist atmosphere which has worried this observer, at least, so much during recent years.

No matter what happens in the future, this change is just so much "velvet."

❖

A Courageous Move

IF WE were asked to arrange the textile events of the last month in the order of their significance, we would give first place to the action of the Hosiery Code Authority in fixing a minimum price for the key full-fashioned number. This brings to a definite test one of the most discussed and most controversial NRA code provisions—that prohibiting sale below "reasonable cost."

Personally, we have an experimental attitude toward this move on the part of the hosiery group. We have previously declared our lack of sympathy with price-fixing, as such. It was declared at the meeting that this step was not an attempt at price-fixing. To some, this may represent splitting hairs in terminology. But we can recognize an essential difference: one which, if properly capitalized, could make of this minimum-price provision a constructive tool devoid of the disadvantages of price-fixing.

We may be completely wrong in this. It is a complicated subject, on which no one should attempt to argue categorically. But, right or wrong, we want to see the principle put to a test.

And we admire the courageous manner in which the Hosiery Code Authority moved to do just that.

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We Are Worried

WE MUST be getting old. Our nose for news seems out of joint.

When we came back from the Charleston meeting of the American Cotton Manufacturers Association, preceded by a short run through mill territory, we thought we had a fair idea of conditions in cotton mills in that section. Making all due allowance for the partisanship of the manufacturers with whom we talked, and for our own credulity, we still felt that the status of labor was sounder than it had ever been before.

But then we started to read the newspapers. Clippings quoting Thomas F. McMahon and Francis J. Gorman, president and vice-president respectively of the United Textile Workers of America, began to pour over our desk.

We learned that "there is no power on earth that can stop a revolt in the South"; that the Cotton Textile National Industrial Relations Board has completely neglected its functions; that "the load on textile workers of the South is too great, it is destroying the physical as well as the mental health of the workers"; and that "dividends and dollars are again in the saddle, with humanitarian rights and fair play among workers and employees trailed in the dust."

Of course, Messrs. McMahon and Gorman may have been misquoted. If so, we can sympathize with them because our own views were seriously (although unintentionally, we believe) distorted by a daily newspaper last month.

But if those really are the conditions they found, it is only a question of time before we lose our job.

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Those RFC Loans

INSTEAD of any stigma attaching to those companies which have secured RFC loans through the Textile Industry Mortgage Corp., the granting of such loans should be taken as a reflection of the fundamental soundness of the recipient concerns.

In the story on the operation of that corporation published in these columns in March, it was stated: "The applicants for loans are having a hard time making out a case. Those that are able to comply with all the requirements imposed are apparently expected to be in a condition where it would seem that no loans for working capital or any other purpose were needed."

The mortgage corporation represents a constructive medium. Even though it may serve relatively few firms, it offers to them relief from the unwarranted disaster with which the unprecedented conditions of recent years have threatened so many reputable companies.

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Times Change!

"THERE has been talk of the mills moving North due to wage conditions under the recent set-up North and South but this has not been decided upon as yet," states one of our correspondents in a news item on a certain group of southern mills. . . . . Whether the mills move or not, the mere fact that such a suggestion is made is in striking contrast to the textile news of recent years.

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We Blush

Editor, TEXTILE WORLD:

The opening editorial in the April issue of TEXTILE WORLD, I used last night in a public address, which I gave on the making of industrial opinion, as an illustration of the potent power for good the editor of an industrial publication wields in the leadership of his industry. This is not only a statement of broad purpose, with which I cannot help but agree, but is a challenge to practical co-operative effort, which I hope will not be lost in the great industry, which I have come to have some contact with through my work in the Textile Foundation's Education Survey.

F. M. FEIKER.

REMARKABLE TRIBUTE PAID TO

Dr. E. W. France

IT FALLS to the lot of few men to receive public recognition of their life-work such as came to Dr. E. W. France, director of the Philadelphia Textile School, on Apr. 26. An entire industry made vocal its respect and affection for him, at the dinner held in honor of the 50th anniversary of the founding of the school and of Dr. France's association with it.

But the tribute did not come from textile manufacturers alone. John Dickinson, Assistant Secretary of Commerce, brought greetings from President Roosevelt. Secretary of Commerce Roper, speaking from Washington, introduced Mr. Dickinson. Mayor J. Hampton Moore spoke for the City of Philadelphia. J. Stodgdell Stokes, vice-president of the Pennsylvania Museum of Art, of which the textile school is a part, spoke for that institution. Lewis A. Hird, of Samuel Hird & Sons, Inc., brought greetings from the National Association of Wool Manufacturers. E. B. Moore, president of Penn Worsted Co., presided as chairman of the dinner committee.

Nor were words the only medium of congratulation used. T. B. Hayward, secretary-treasurer of the Dinner Committee, presented Dr. France with a sum of money on behalf of the diners and those unable to attend.

In fact, the tribute was almost too much to impose upon a man. Dr. France showed the effects of the emotional strain. "One would have to possess a heart of stone not to be deeply touched on an occasion such as this," he said. "Glancing about over this great gathering, I can recognize here and there throughout this banquet hall many of our former students from all over this broad land. I am proud to know that so many of you are taking advantage of this opportunity of returning to your alma mater on this golden jubilee occasion." Incidentally, Dr. France paid public tribute to the part which *Textile Record*, a predecessor of TEXTILE WORLD, and specifically Frank L. Nagle, now chairman of the board of this publication, played in connection with the beginnings of Philadelphia Textile School.

We know of no greater satisfaction that can come to a man than that of having contributed to the progress of education. When that contribution has been so vital to a great industry and its workers as has that of Dr. France, it reaches what might be called the limit of human achievement.

Noteworthy as was the tribute paid to Dr. France at the testimonial dinner last month, it was, perforce, only a feeble expression of the regard in which he is held. For its complete reflection, one must explore the minds and the hearts of those in the industry.—*Editor.*

Bulging Charleston

REFLECTS BETTER TIMES IN COTTON INDUSTRY AS A.C.M.A. MEETS

W. D. Anderson, Sr., elected president, A.C.M.A.

COTTON manufacturers took possession of Charleston, S. C., for a few days last month. By motor, by train, by boat — in fact, every way except on foot—they poured into the city, over-crowded its hotels, rambled in its gardens, sampled its illegally legal liquor—and had a good time generally.

Their march-song, as they went to the annual convention of the American Cotton Manufacturers Association, might very well have been "Happy Days Are Here Again." In spirit as well as in size, it was an old-time textile-convention crowd—in fact, the first one we've seen in years that was not overshadowed by apprehension. Of course, there were plenty of things to worry about; there always are. But on the whole, there were evidences that this has been a pretty good year.

Not only did the textile men like Charleston, but Charleston seemed to like its visitors. In fact, the only unenthusiastic comment we heard was from a barkeeper who, in answer to a question, said: "Oh, yes, the cotton manufacturers are bringing us some business. . . . But what we want is the Fleet!"

Getting down to more serious topics, the convention was essentially a report of stewardship. The men who have been wrestling with Washington for twelve months came back to the home-folks and told them about the war. They didn't exaggerate either. In fact, we felt that they were almost too modest.

Two outstanding thoughts protruded from the various speeches:

1. The southern cotton industry is deeply conscious of the part the NRA and other governmental agencies have played in the improvement which has been achieved during the last year.

2. The southern cotton industry, on the other hand, wants just as little governmental interference now and during the near future as possible, so that the "digestive" period can elapse with a minimum of stomach-aches.

What a Banquet!

Judged by the standards of any good manual of etiquette, the annual banquet at Charleston could hardly be called a social success. Approximately one-and-a-half diners sat where one should have sat; the diners had to stalk their food instead of having it served to them; and the noise resembled that of a weave-shed.

And yet everybody seemed to have a good time, to enjoy the speaker, Strickland Gillilan (admittedly a humorist), and to gloat over the evidences of prosperity.

Honor guests included L. W. Robert, Jr., Assistant Secretary of the United States Treasury; George A. Sloan, president of the Cotton-Textile Institute; Magruder Dent, president of the Association of Cotton Textile Merchants of New York; Fred A. Rakestraw, president of the Cotton Yarn Merchants Association; A. M. Fairley, president of the Cotton Manufacturers Association of North Carolina; S. M. Beattie, president of the Cotton Manufacturers Association of South Carolina; L. L. Jones, president of the Cotton Manufacturers Association of Georgia; and Scott Roberts, president of the Cotton Manufacturers Association of Alabama.

Code Successes and Pitfalls

George A. Sloan, chairman of the Cotton-Textile Code Authority and president of the Cotton-Textile Institute, speaking at the first general session of the convention at the Francis Marion Hotel, Thursday, April 19, told of the successes and the pitfalls of code administration. Looking into the future he pointed out that doubt and apprehension was still holding back constructive development; that the capital goods industries in particular were cramped by this situation and as a result were bearing by far the greatest share of the burden of unemployment; that tax burdens instead of being made more onerous should be lightened; that evidences of arbitrary action on the part of government were disquieting to those who saw the success of the NRA to lie in fostering the ideals of cooperative self-government in which it was conceived. His climax came in an appeal to recognize the honest and upright man of business and to aid him rather than cramp him by legislation aimed at wrongdoers.

"Should we not determine," he said, "not merely whether every possibility of wrongdoing has been covered and guarded against, but whether, in our effort to let no guilty man escape, we have not so beset the path of the honest man with pitfalls that he is unable to proceed along the road which he is entitled to travel?"

Early in his address, Mr. Sloan stressed the virtue of

Credit Where

"I would like particularly to express my appreciation of the fidelity and loyalty of the Board of Government which has voted to me and to the Special Committee selected by me, its abiding confidence and authority to act for them in the Code Authority. . . . . I want to record these names in our Year Book and call the roll publicly: Donald Comer, W. D. Anderson, Cason J. Callaway, W. J. Vereen, R. E. Henry, Charles A. Cannon, B. B. Gossett, Stuart W. Cramer and R. R. West. . . . . I would be untrue to myself if I did not here publicly proclaim my admiration, devotion and loyalty to George A. Sloan, the industry's untiring

machine-hour limitation as the successful means for stabilizing industry. He said:

That limitation is the keystone of our code. Through it the burden of over-capacity, which for the last decade has hung around our necks, has been materially lightened. Production has been brought within a measurable distance of consumer demand. The gradual waste of working capital resulting from the necessity of finding purchasers for a volume of production beyond the capacity of the market to absorb has been arrested. For the first time in many years a large part of the industry is out of the "red," and can see, in prospect at least, a possibility of some return from its activities. Withal, there has been no undue increase in price to the consumer. While substantial price increases have occurred, we have been able to demonstrate, under inquiry, that they no more than reflect the additional costs of making effective the NRA program of rehabilitation plus the processing tax which has amounted to approximately $79,000,000 during the last *eight* months.

To the question often asked, "Has the Recovery Act to date achieved its basic purpose?" I answer, from the standpoint of our industry, unhesitatingly "Yes." And, insofar as I have observed the operation of other industries under their codes, I believe that with relatively few exceptions our experience is the experience of industry in general.

According to figures recently presented by the Secretary of Labor, the number of persons employed last November in the manufacture of consumer goods was 3,730,000, as compared with 4,468,000 in November, 1929. This would indicate that the burden of unemployment in the consumer goods industries, including your own, in November was in the neighborhood of 738,000 persons, or less than 20%. It is probably less at the present time.

More than nine-tenths of the unemployment burden in the United States is outside the consumer goods industries. The great problem before the country in the way of reabsorbing the unemployed is intimately related to the necessity of reviving the capital goods industries.

Studies have recently been made for the purpose of determining to what extent the cotton textile mills of the country furnish a potential market, within the comparatively near future, for absorption of capital goods. That there is, in our industry, as in others, equipment in need of replacement for maximum efficiency, goes without saying. An estimate for the entire industry places the amount of capital expenditures which the industry would like to make, within the next eighteen months, at approximately $100,000,000.

Yet, through all of the answers which we received in developing this information, there runs a current doubt, of hesitation, of reluctance to proceed—not because the expenditures are not desirable *per se*—but because those who would otherwise make them are apprehensive of the consequences of certain governmental measures with which they believe themselves to be threatened.

There is a school of political thought, expressed in measures now pending in the Congress, which seeks continuously to impose heavier burdens upon employers by arbitrary shortening of working hours, by forcing wage increases, by disturbing established relations between employer and employee, measures which threaten increased costs without hope of recoupment and, consequently, loss of whatever small margin of profit there may be or which I may say we hope to have some day.

Up to the present time the recovery program has succeeded largely because it has been cooperatively conceived and cooperatively administered. But instances now occur from time to time where it would appear that on the Government side, there is a tendency, in some quarters, to yield to the temptation to act arbitrarily; to superimpose, *ex parte*, new conditions and new provisions upon industry. As yet these tendencies have not developed sufficiently to be serious; but I feel it my duty, as one who is tremendously interested in the success of NRA, to sound the warning that there is no surer way to undermine the successful working of the recovery program, than for the Government to abandon the cooperative conception, the ideal of self-government by industry under Government supervision, which so far has characterized every major policy and activity in the administration of the act.

By the presentation and analysis of three charts, Mr. Sloan demonstrated the substantial increase in hourly wages and in weekly earnings. The earnings were corrected for changes in cost of living and therefore represented *real* wages. The wages now received by cotton mill workers have a greater purchasing power than even in 1929. Another graph showed the sharp gain in employment under the code, which is now higher than in 1929.

The last graph on cotton consumption and payrolls showed heavy mill business just prior to the code last summer, but Mr. Sloan explained that stock figures at that time indicated mills were not speeding up to take advantage of the coming code, since mill-owned stocks were lowest in history when the code went into effect. The large business was rather due to distributors who were anticipating the effects of the code. The fact that in the eight months under the code, cotton consumption was greater than for any similar period since the 1929-30 season, disproves the assertion by some, said Mr. Sloan, that machine limitation has resulted in reduced production. The payroll curve showed sharp upturn last summer and after small recession is now virtually on a par with August's high record.

Mr. Sloan stressed the success of the machine-hour limitation principle in the fact that the net position of the industry at the end of March was better than at the

A Pledge and a Plea

Geo. A. Sloan, who addressed convention

"I believe in the NRA. I also believe in the essential integrity and soundness of American business. I give my wholehearted allegiance to the basic underlying theory of the National Recovery Act, which is to seek, co-operatively, the return of national health for the benefit alike of industry, of employees, and of the public. My plea here today is that the same spirit which has actuated NRA to date, not only be continued in the National Recovery Administration itself, but be extended into our legislative halls, and, even more, into the basic thinking of our people."—*From address by George A. Sloan.*

Credit Is Due

leader and national diplomat. . . . . We feel that the industry is also indebted far beyond its comprehension, to the political astuteness and legal advice of Hon. O. Max Gardner and his worthy assistant, Fred J. Morrison. . . . . To General Johnson, Mr. Whiteside, Dr. Robert Bruere, Major George L. Berry, and scores of others whose names we would like to mention, we express our thanks and appreciation. . . . . I also wish to express my deep appreciation to our very efficient secretary, Mr. McLaurine."—*From address by President Thomas M. Marchant before meeting of A.C.M.A.*

T. M. Marchant, retiring president, A.C.M.A.

Robt. W. Bruere, who also addressed convention

end of any corresponding period during the last six years. Unfilled orders, less stocks at mills, on March 31, 1934, amounted to 2.59 weeks of current production.

Mr. Sloan also touched upon the success and current support of National Cotton Week.

Broad Survey by President Marchant

Following a welcome to the visitors by Mayor Maybank of Charleston and response by W. J. Vereen, vice-president of Moultrie (Ga.) Cotton Mills, T. M. Marchant, retiring president of A.C.M.A. surveyed the activities of the year with comments on possible obstacles of the future. Following a whole-hearted approval of the basic NRA plan, he pointed out elements which he regarded as inimical to the successful realization of its aims and ideals. Referring to the "Gold Fish Bowl" conference called by Gen. Johnson in Washington in March and his discovery there that most of the adverse criticism was due to misunderstanding over details, Mr. Marchant said, in part:

> It is my honest opinion that the recovery administration, rather than to attempt further drastic changes in its policies, should devote its energy largely to clarifying the Recovery Act, refining the codes that have been so hastily organized, and effecting a rigid enforcement.
>
> To be frank, at the present time, there has grown up in many industries a question as to whether or not the Recovery Administration can enforce the codes that have been formulated. It seems to me that this indecision, this unrest, this questioning on the part of so many industrialists is destructive of the recovery plans.
>
> We realize that the recovery plan has been difficult, that it has been one of experimentation, that it has been negative as well as positive, but we feel that we have arrived at a time when business should be able to detect certain definite and abiding trends and to plan not for temporary emergencies, but for the future long term policy. Inasmuch as the foments of change constantly harass, many are standing idly by waiting for something permanent to appear.
>
> I would like to emphasize tersely that what industry needs today is confidence and not controversy. It needs stability and not change. It needs a knowledge that the steps taken thus far are fundamental, sound and can be made effective. It is too hazardous an undertaking to constantly be dragging many billion dollars worth of capital goods and consumer products before some changing tribunal.

Mr. Marchant paid tribute to the splendid attitude of labor during the depression and the reconstruction, in particular to those employed in southern mills, for their loyalty, patience and sympathetic understanding of manufacturers' problems.

Speaking to the industry's customers he stressed the fact that the reduction in hours, increase in hourly pay and levying of processing tax were sufficient basis for substantial increase in price of goods. He added a word of explanation:

> Competition is not dead, nor are the anti-trust laws. Labor, capital, consumer and the government have simply met and written the rules and regulations by which the game of commerce can be played, and the old strenuosity of competition still lives. There are at least 2,000 units in the textile industry competing for the consumer's dollar. With such conditions, it is impossible under present conditions to create a monopoly, or to do anything which tends toward monopolistic control. I would like to say to our consumers that we are just as anxious to get our commodities over to them at reasonable and fair prices as they are to purchase them, because we realize that the greater the distribution the more manufacturing can increase. There is at the present time an intense effort on the part of certain competing fibers and commodities to enter the textile field as substitutes. The textile industry is also held in abeyance by these if it should have any tendency to unduly raise its prices.

The speaker then turned to the Agricultural Adjustment Act and quoted Secretary of Agriculture Wallace to the effect that farm reduction plans are an emergency program until a permanent policy and program may be established. Going on to the processing tax, Mr. Marchant called it unfortunate that the industry should have to meet this added burden of about 40% of raw material market value at a time when it is adjusting itself to shorter hours and higher wage rates. He said that although the tax was expected to yield nearly $125,000,000 in the 1933-34 cotton year it is spoken of as unimportant to the ultimate consumer, though actually more than the combined net profits of the cotton textile industry in its best year since the World War. He added, "Mills making coarse cotton yarns find that even under the code the processing tax exceeds their total payroll." Mr. Marchant then analyzed the situation on compensatory taxes, saying: "We feel that the industry should vigorously continue its efforts to secure some degree of protection for cotton goods before competitive materials become too firmly entrenched, or a permanent injury will be inflicted upon the cotton textile industry."

The speaker turned to freight rates and pointed out discrepancies which resulted in the East getting a lower rate for its total freight cost on raw cotton from the South and on goods to New York and Chicago, than the southern mills are able to get for similar services.

In reference to local taxes, he said that South Carolina has shown the greatest increase in rate per spindle of any State, and that through the South there had been a steady shifting of the tax load to industry. The South Carolina rate at 0.65c. in 1933 was a 51% increase in 12 years. The Fall River rate at 0.41c. in 1933 was a 40% decrease in 14 years. New England tax decreases, he said, reflect the vigorous effort at tax relief on the part of the industry. It is essential, he added, that the South bring about tax relief.

On the subject of the North-South base wage differential of $1.00, Mr. Marchant stated that southern mills were at a disadvantage as the extra mill village cost averages $2.00 to $3.50 per person per week.

Change in Type of Labor Complaint

The final speaker on the morning's program was Dr. Robert W. Bruere, chairman of the Cotton Textile National Industrial Relations Board. He began with

tributes to his two associates on the board, Maj. George L. Berry and B. E. Geer; to the members of the State boards who have given generously of their time; and to the hundreds of thousands of mill workers who have shown a fine spirit of partnership. He added that the National Board has invariably and unanimously sustained the State boards whenever appeal was taken to the National Board under sub-section 4 of Section XVII. He continued:

Such success as we of the National Board have had in contributing to harmonious relationships between management and labor is due, I think, principally to the fact that we have built our policies and procedures directly under the guidance of the people back there in the mills. To the utmost of our ability we have avoided "final determinations" and issuing orders and rulings by building up at our headquarters an information service designed to clear up misunderstandings with respect to the meaning of the labor provisions of the code, and to encourage the complainants to proceed under Section XVII and to avail themselves of the experience and skill of the members of the State Boards.

During the first months of our activity under Section XVII by far the greatest number of problems brought to our attention had to do with the explicit provisions of the code itself. Most of the complaints, whether justified or not, alleged violation of these provisions. Today the most exacting problems we are called upon to deal with arise from demands of the workers not only for the readjustment of the work load, but also for the modification of wage rates and weekly earnings in the brackets above the code minima. In such cases the National Board under Section XVII has no power to act except by way of extending its friendly offices and in responding to the joint request of the parties to act as a board of arbitration. Such cases present new and difficult problems; they impose a great responsibility upon the National Board because any determinations made in a particular mill may start disturbing currents running throughout the industry. We are proceeding with the utmost caution; we are drawing to our aid the best available technicians. In due course we hope for the privilege of making a report on such problems to the Code Authority for their counsel and aid.

W. D. Anderson Elected President

The business session Friday morning was featured by the annual report of W. M. McLaurine, secretary and treasurer, and by the usual committee reports and election of officers. W. D. Anderson, Sr., president of the Bibb Mfg. Co., Macon, Ga., and first vice-president of the association for the last year, was elected president for the coming year. Thomas H. Webb, of Concord, N. C., was elected first vice-president, and Donald Comer, of Birmingham, Ala., was named second vice-president. Mr. McLaurine was re-elected secretary and treasurer.

New members of the board of government were elected as follows: L. L. Jones, Canton, Ga.; Fred L. Smyre, Gastonia, N. C.; Harvey W. Moore, Concord, N. C.; George P. Swift, Columbus, Ga.; and A. Foster McKissick, Greenville, S. C.

The retiring president, Mr. Marchant, was presented with the association medal by Dr. B. E. Geer, of Greenville. Dr. Geer also called attention to the institute which is to be conducted this summer at Blue Ridge, N. C., the purpose being to create a closer relationship between employers and employees.

The report of Secretary McLaurine reviewed the stirring events which have taken place in the cotton textile industry during the last year, and laid stress on the effect which legislation has had on the industry.

Thomas H. Webb, elected first vice-president

Donald Comer, elected second vice-president

S. Marshall Beattie, of Greenville, S. C., introduced W. A. Floyd, who presented the report of the cotton committee. Mr. Floyd quoted E. G. Parker, chairman of the Cotton States Arbitration Board, urging the cotton manufacturers' associations of the various States to appoint committees to attend the hearings on the proposed cotton code.

Carl R. Cunningham, traffic manager, Atlanta, Ga., pointed out that irregular freight rates allowed southwestern cotton to be manufactured in New Bedford or Fall River, Mass., and delivered in New York or Chicago often at less than one-half the shipping charges for the same performance via Atlanta, Ga.; Greenville, S. C., or Greensboro, N. C.

Thomas H. Webb, of Concord, N. C., read a letter from Carl R. Harris, president of the Arkwrights, Inc., in which Mr. Harris reminded the members of the importance of research, and requested the association's continued support.

Stuart W. Cramer, Sr., of Cramerton, N. C., reported on national legislation, on the work of the National Industrial Conference Board, and on the activities of the Textile Foundation. He said that the Wagner Labor Disputes Act, if enacted, will be a great obstacle in the recovery program of the cotton textile industry.

Robert Lassiter, of Charlotte, N. C., reported for the General Arbitration Board.

Asks Time for NRA Development

A resolution was unanimously passed endorsing the principles of the N.I.R.A. and urging the Administration and Congress "to allow sufficient time for the full benefits of this act to develop before attempting further radical changes in purpose and operation as contemplated by such proposals as the Wagner-Connery bill and the Wagner-Lewis bill." In another resolution the Government was urged to protect cotton, by tariff, from the jute that comes from "the pauper labor of India." It was also urged to protect the export trade in cotton manufactures by reciprocal trade agreements. The Secretary of Agriculture was urged to impose a compensatory tax on fibers competing with cotton, in order to restore the competitive relationships which existed prior to the imposition of the cotton processing tax.

Another resolution commended George A. Sloan for his "excellent leadership, his untiring efforts, and his loyal devotion to the interests of the cotton manufacturing industry of the United States." "The passage of this resolution," it concluded, "is a pledge to him of our support and continued cooperation."

Hold Your Price!

HOSIERY CODE AUTHORITY TELLS INDUSTRY —AND WILL SEE THAT IT'S DONE

THE Hosiery Code Authority has a flair for the dramatic. This was proved at the open-forum session of the industry held April 23, at the Bellevue-Stratford Hotel, Philadelphia, when after several hours' reading of important but unexciting reports, Earl Constantine, managing director of the National Association of Hosiery Manufacturers, quietly announced that the Code Authority had set $5.75 as a minimum selling price for four- and seven-thread 42-gauge women's full-fashioned. This news which was obviously the major development of the day to most of those in the crowded ballroom, precipitated an outburst of prolonged cheering. Market reaction expressed subsequent to the meeting indicated a widespread belief that this mandate is going to be difficult to enforce, unless the Code Authority elaborates on its ruling by specifying minimum courses, to meet the problem of varying qualities in the four and seven thread 42-gauge field; but the industry as a whole strongly approved the action as a step to end below-cost selling. The price is for quarter-dozen packing.

Indeed, it was generally felt that the decision had done much to strengthen the prestige of the Code Authority. Mr. Constantine, who led the proceedings at the hearing under guidance of John Wyckoff Mettler, as Chairman of the Code Authority, made it clear that the Code Authority recognized the difficulties involved in enforcing the minimum. Explaining that the prices of other numbers will be kept in relation to the minimum set for 42s, he added "we will clear up this price situation if we have to put our whole staff of investigators on this one job."

The minimum price announcement came as an answer to the recent market break when a leading company upset levels by cutting 42-gauge numbers to $5.00. Many manufacturers had their fingers badly burned in the break, and their resentment lent tension to the opening of the hearing. So keen was their interest in this question, and so hearty their enthusiasm on hearing the announcement of the base price, that numerous other important developments were temporarily eclipsed.

The meeting was divided into two parts, a morning session which was devoted mainly to reports read by Mr. Constantine, and an afternoon session at which these reports were discussed.

The Code Authority's statement comprised six points, of which the price announcement was the first. A digest of the five other points is given as follows:

2. The NRA memorandum empowering the Authority in an emergency to declare below-cost selling an unfair trade practice was cited, with the added comment that the Authority "intends to secure the full effect of this order."

3. A code amendment was proposed providing for listing all prices and for identifying products of each plant by a coded number.

4. The Authority stated that it favored further curtailment and would canvass the industry as to how this should be effected.

5. The Authority pointed out that, since 90% of the full-fashioned mills pay piece rates well above the minimum wages, the remaining 10% of the mills have an unfair advantage because their minimum wages "are, to all practicable purposes, average wages," and to eliminate this the Authority suggested that the minimum be increased in skilled operations where wide disparity exists.

6. The Authority will recommend to the Administrator that certificates be required for installation of new machinery.

Prior to reading reports from committees, Mr. Constantine commented on the relationship between the hosiery industry, as a consuming division, and the durable goods industry. He urged manufacturers to replace equipment and paint and repair plants wherever needed, on the principle that by helping the durable goods manufacturers they would help themselves. The report on mill conditions under the NRA showed that wages in seamless mills had increased 39% as against 16% in the full-fashioned division. In both seamless and full-fashioned, the total number of employees increased 22% from April 1933 to March, 1934.

The report on production control, presented by J. P. Margeson, as chairman, set forth three principles—First, the need of agreement on control plan; second, the desirability of "action as against education"; third, the formulation of a simple, concise and easily policed plan. The committee opposed any curtailment other than a month's annual shutdown in two fortnightly periods, thus dissenting from the opinion of the Code Authority.

Where the hosiery association convention was held

Sentiments expressed from the floor at the afternoon session were largely in approval of the Authority's policies, though many believed the decision on minimum prices should have included more details. Mr. Constantine explained that this policy will be developed further and will be made plain to all.

John Wyckoff Mettler, chairman, Hosiery Code Authority

John H. Brine, elected president, National Association of Hosiery Manufacturers

William Meyer, who retired as president of hosiery association after three terms

Earl Constantine, managing director, National Association of Hosiery Manufacturers

He said the figure of $5.75 as cost was reached by studying the following factors—labor charge; waste allowance; dyeing, finishing and packing; overhead; and selling expenses. John Botts, of Harrington & Waring, New York, won applause when he criticized the industry for failing to protect itself against buyers who cancel.

From point of getting an expression of trade opinion the meeting was perhaps the most successful since the enactment of the code.

Subsequent to the meeting, the Code Authority announced machinery for enactment of its policies as follows: A simple cost manual to be used by manufacturers in complying with new basic price rule, and a uniform cost estimate form, have been approved; two members of the Authority will sit in New York Thursdays and Fridays weekly, beginning April 30, to consider violations of price policy.

Brine Heads Hosiery Association

THE National Association of Hosiery Manufacturers changed pilots at its annual convention in Philadelphia, April 25. After three years of service, climaxed by the unprecedented demand of the last year, William Meyer, president of the Apex Hosiery Co., retired as president of the association amid both formal and informal acclaim of the service he has rendered to the industry. Succeeding him is John H. Brine, president of Rollins Hosiery Mills, Des Moines, Iowa.

The new president speaks a simple but forceful language. "Many of you have probably never heard of John Brine or of the Rollins Hosiery Mills," he said to the meeting immediately after his election, "but you're going to hear a lot of both during the next year." In answer to the charge that the Code Authority is not enforcing the code, he made the wise observation that, if each individual manufacturer will keep his own house in order, there will be no enforcing to be done.

In addition to Mr. Brine, the following officers were elected: Vice-presidents, William H. Gosch, of Nolde & Horst Co., Reading, Pa., and Austin H. Carr, of Durham (N. C.) Hosiery Mills; treasurer, Ernest Blood, of John Blood & Co., Philadelphia. The following were elected to fill vacancies on the board of directors: Joseph H. Davenport, of Davenport Hosiery Mills, Chattanooga, Tenn.; Henry J. Herbst, of General Hosiery Co., Inc., Fort Wayne, Ind.; R. O. Huffman, of Morganton (N. C.) Full-Fashioned Hosiery Co.; Edward H. Jamison, of Joseph Black & Sons Co., York, Pa.; and M. V. Moss, of No-Mend Hosiery Mills, Philadelphia.

Another important feature of the meeting was the presentation of the second progress report of the Joint Committee on Classification, by Erb Ditton, of Gotham Silk Hosiery Co. Paying high tribute to the work done by Warren P. Seem, of Julius Kayser & Co., in establishing and promoting the 9-meter composite test for raw silk, Mr. Ditton said that this method is receiving wider support at the present time than did the seriplane when its adoption as standard was first recommended.

In commenting upon the progress report, Mr. Constantine announced that the international conference on raw silk proposed by the joint committee had received the approval of the three organizations concerned: National Association of Hosiery Manufacturers, Commodity Exchange, Inc., and National Federation of Textiles. Preparations are being made, he said, to hold this conference in New York in the fall of this year, and invitations will be extended to the raw-silk producers and consumers throughout the world. The purpose of the conference is to evolve a set of tests fair to all.

"The other man's pasture is always likely to look greener," said Mr. Meyer in his annual address. "Probably we all point to some other code at some time or another and have the thought that it is a better code than ours and is functioning better. My own opinion is that few codes are simpler than the hosiery code, and that the record to date, if there were a way of comparing it with others, would disclose that our code has operated with better success than most codes, and that it has good administration. . . .

"The biggest difficulty encountered under our code to date, and I judge this is true of most codes, relates to the price factor. . . . In too many industries, ours included, the price structure prevailing is, if anything, worse than that which existed when the codes went into effect, bearing in mind the material increase in costs which have resulted from codes. This situation presents a very serious problem. It is not one which can be left to industry to worry about alone. If practical and effective assistance does not come from the Administration at Washington without much further delay, the structure of actual wages will probably be subjected to severe strain, and there will result suspensions of operation which will translate themselves into unemployment rather than employment."

Instead of a code diminishing the need for a national trade association, Mr. Meyer stated, it makes such an association more necessary than ever before.

THE SILK INDUSTRY'S NEW PILOT—

Peter Van Horn

PROMPT action along lines best calculated to give constructive results; a willing ear to criticism of whatever nature, provided it be helpful in purpose; and a frank intolerance of obstructionist tactics wherever manifest—such, in brief, is the philosophy which Peter Van Horn is applying to his task in the silk textile industry. Slightly less than two months in his dual office of chairman of the Silk Textile Code Authority and executive vice-president of the National Federation of Textiles, Inc., Mr. Van Horn already has made material progress toward welding together the widely divergent factions which comprise the silk industry. However, as he himself was quick to point out when interviewed by TEXTILE WORLD at the Federation's New York offices, the story to date is more one of planning than of finished accomplishments.

During the crowded weeks that have gone since his appointment, March 1, Mr. Van Horn concentrated on two main activities—intensive study of the silk industry as regards its structure, history and fundamental problems; and initiation of steps, such as code amendments to help clarify the industry's status under the NRA. Asked to give his conclusions based on observation and activities to date, he settled back in his chair and outlined his views in short crisp sentences. The three major problems of the silk industry as he sees them are: First, production; second, wages; and third, selling below cost. There is no magic solution to any of them, and—he emphasized this with a raised finger—the industry must not expect the NRA to do the whole job. Basically, the redemption of the silk industry must come from within the industry itself; that is the meaning of self-government.

Mr. Van Horn was appointed as "an impartial chairman of the Code Authority." Talking with him, it soon became clear that especial significance attached to the adjective "impartial." His background is strictly non-silk, if it may be so phrased, and this carries an important advantage in that he is not affiliated with any faction within the industry. One of his first steps in office was toward coordinating the various silk districts, and overcoming the antagonism which has long prevented any full-fledged harmony.

"During recent weeks," he said, "we have made good progress in that direction. It is clear to me that my biggest job is to make all the different groups confident that I am for the trade as a whole and have no personal motive. I am sure they respond to this feeling and recognize me as an impartial chairman because already we have been able to unify some groups which were very antagonistic."

Then he resumed the outline of his policy. Simplicity in procedure is an important requisite to efficient operation of the Code Authority; to this end, the Silk Code Authority will have only two meetings each month. The Authority will function in conjunction with an executive committee appointed by Mr. Van Horn. Code Authority meetings under his chairmanship will not be open to general discussion, but only to get advice from recognized spokesmen of the industry on pertinent questions.

"We will try to conduct our meetings as business corporations conduct theirs," he added. "One of the troubles of self-government is that there is too much talk of what is wrong—too much destructive criticism. I have no use for criticism that does not carry with it any helpful suggestion. We can do a good job in the silk industry; I have no doubt of that, as the majority of the trade recognizes our problems. The thing to keep in mind is that the Government enacted this law to help us help ourselves; the trade must reflect the same spirit."

The question of wage minimums then was posed. Would the Authority favor average minimums over a period of time or fixed minimums per week? This problem, the chairman explained, is in charge of a committee comprising three favoring one plan, three favoring the other with himself as an impartial seventh. His main aim, he said, is to effect a wage stability which would satisfy the majority, and with that in view a compromise plan is being developed.

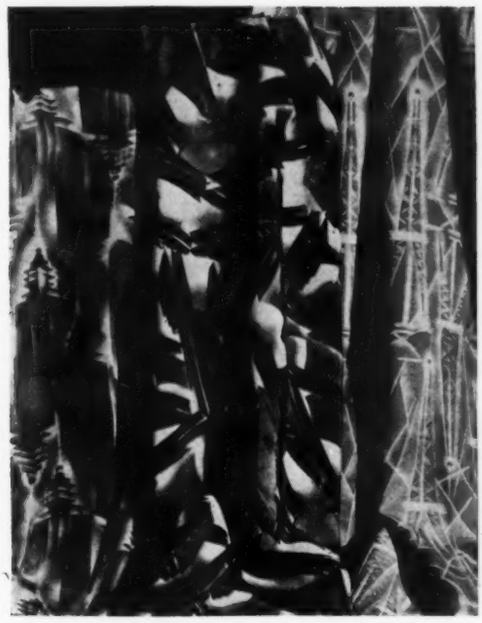
Such, in thumbnail presentation, is the policy of the new chairman of the Silk Code Authority. But who, it may be asked, is Peter Van Horn? In answer to which let us add a biographical note. He is a graduate of Ohio State University and the University of California; after a period as insurance broker in California, he became affiliated with the National Association of Better Business Bureaus, eventually being elected president, which post he has just resigned, together with his post as manager of the Columbus (Ohio) Better Business Bureau. As honorary consultant to the NRA, he did notable work at Washington during the infancy of that administration last summer.

He is 40 years old, married, has one son, and lives in New York. In personality, he is alert and decisive; he thinks fast and—usually—talks slowly. He was an aviator in the war, which training still evidences itself in an erect military bearing.

P.S. He does *not* play golf!

Art In Industry . . .

ONCE A SLOGAN, NOW AN ACCOMPLISHED FACT



Three of a series of printed silks designed by Walter Dorwin Teague for Marshall Field & Co. and based on motifs derived from A Century of Progress Exposition. Left to right: "Science Tower," "Flying Buttresses," "Sky Ride."

OFTEN, when we dream of and work for an idea for years, its actual accomplishment comes on us unawares, and we continue to think of it as an ideal long after it has become a fact. That, we feel, may be true of those who have talked "Art in Industry"—with capital letters—for the last two decades or more.

Art *is* in industry now. Witness the Industrial Arts Exposition held last month at Rockefeller Center, New York, under the auspices of the National Alliance of Art and Industry. For once, we regard the utterings of a press-agent as an under-statement, rather than an over-statement. We quote from a press release on this exposition:

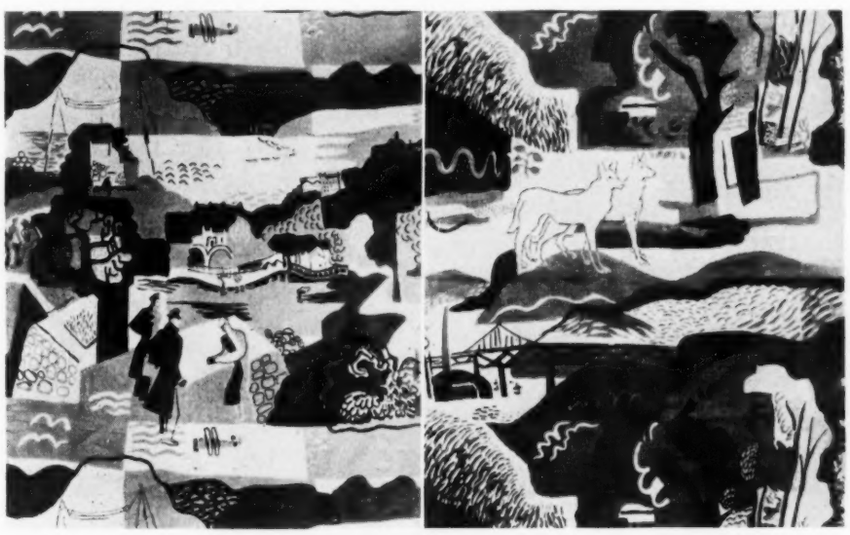
"The stream-lined pencil sharpener and the grand piano, the champagne goblet and the railroad train, the fabrics and the oil-burners, prove that America is developing a style of her own in all types of production, determined by the machine on the one hand and unique social needs on the other. With a modest small-time manufacturer of one of the greatest corporations in the country the story is the same. Europe has known it for many years; we are just learning it."

Incidentally, one of the most interesting phases of the show, to us, was the series of parallel exhibits of ordinary every-day articles "before and after" the invasion of the designer.

The fabric displays were extremely important items. We shall mention two. There were five new designs, by Ruth Reeves, printed by Robert McBratney and shown by James McCutcheon & Co. The group is an outcome of a fellowship granted Miss Reeves last year by the Gardner School of Alumnae Association, for creative work in the design field. Her work is unique in that it represents the evolution of a design. She chose the Hudson River as her theme, with the old Hudson River school of painting as inspiration. Her work went through the following phases: (1) Representational painting in oil in five scenes. (2) Abstract paintings with design motif developing. (3) Design for fabric.

For still another reason, the fabrics designed by Walter Dorwin Teague are vitally interesting. We have known of Mr. Teague's work in many other fields for years; now he enters textile design. Thus, at the exposition, we find that this artist is responsible for a Seamloc rug designed for L. C. Chase & Co., and Century of Progress silks designed for Marshall Field & Co.—to say nothing of an oil burning space heater, thermometers, a circuit breaker panel board, a cafeteria check dispenser, a gas boiler, pewter candelabra and bowls, table glassware, and what have you.

In our opinion, this breaking down of lines of demarcation between different types of design, this invasion of the textile field by designers who have made their reputations in other lines, is both exciting and promising.



Two of Ruth Reeve's Hudson River Series of hand-blocked drapery fabrics showing scene from estate of Mrs. James Roosevelt at Hyde Park and West Point. Printed on Sanforized linen by Robert McBratney & Co. and on Celanese ninon.

Taming the Filling . . .

ORDER GRADUALLY EMERGING FROM CONFUSION IN YARN-CONDITIONING METHODS

"NATURE in the raw is seldom mild," someone has said (more than once). Although this statement was apparently intended to apply to tigers, water buffaloes, Indians, and tobacco, it holds more or less for cotton and wool fibers. The wildness of fibers is due simply to their inclination to retain their natural forms. If they were brought up to curl in a specific manner or even to lie straight, they object to being bent or twisted into some unnatural shape. In their struggle to regain their original form they are likely to kink the yarn—unless they are tamed.

Since warp yarn is under considerable tension during weaving and, in addition, is often sized (particularly in the case of cotton), the ends have little opportunity to kink. Therefore little special attempt is made to tame warp yarn, except in the case of those high twists which give trouble on the twisters, spoolers, and warping equipment. Possibly a more general taming would be of greater value than is commonly believed.

Filling yarn is under comparatively negligible tension and is rarely sized. Therefore it is quite free to kink. Filling kinks which are woven into the fabric lower the quality of the cloth, which must be repaired or sold at an unsatisfactory price. Kinks also make weaving difficult, since they add tension irregularly to that provided in the shuttle—often to the extent of producing tight and loose picks and even to breaking the yarn. The twist in the filling is sometimes too low to cause kinking; but it is usually sufficient, if the fibers are untamed, to prevent the yarn from lying straight and therefore to give the fabric an undesirable appearance.

The development of modern methods of taming the fibers is difficult to trace historically, but probably the first taming was accomplished by ageing the yarn. This consisted of permitting the bobbins of filling to remain idle for a week or so following spinning and previous to weaving. No doubt the prolonged holding of the fibers in their twisted state permitted their structures to adapt themselves gradually to the new postures. Also it enabled them to regain some of the natural moisture lost in spinning—a matter of around 2%. Moisture is a great aid to taming, as it softens the fibers and makes them more adaptable to change.

A few mills are still employing the ageing method, but these are spinning and weaving low-twist yarn in only one or two numbers year in and year out and can therefore arrange to keep the production of the spinning department considerably ahead of the weaving department. Ageing ties up bobbins and requires considerable floor space.

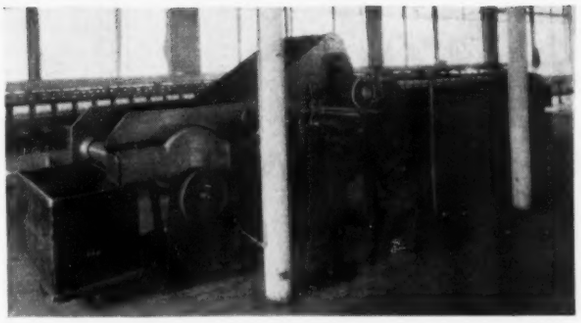
Since the extremely important advantages of moisture as an aid to taming must have been discovered early, it is possible that the next method adopted was one of sprinkling moisture on the bobbins of filling by means of a watering can. Some of the smaller mills are employing this crude, irregular, slow, and expensive method today. On occasions bobbins have been and are being conditioned by placing wet sheets between the layers.

Moisture having been found beneficial, it was natural that the use of steam should be attempted. This was found to set the twist very secureiy. The first steam boxes were built in the repair shops of the mills and included about every imaginable contraption. Some were of wood, some of metal, and some of concrete. They varied widely in shape, and capacities ranged from one basket to four. Steam was thrown at the yarn from top, sides, and bottom, through water and direct. Some mills employed high-pressure steam; and some, low-pressure. The length of time during which the yarn was subjected to steaming varied from 3 min. to 20 or longer, often depending on the whim or attention of the operator. The amounts of moisture actually applied to the yarn ran the gamut up to saturation. The resultant irregularities caused streaks and cloudiness in piece dyes. White yarn was sometimes yellowed by excessive steaming, and the bobbins were swelled and ruined. Rust spots resulted from the use of unsuitable materials in the construction of the steam boxes.

Today steaming is still extensively done—it is absolutely necessary in the case of high twists, such as voiles—but the steaming machines of today are scientifically designed, suitable bobbins are used, the process is a continuous one, and the temperature and moisture are accurately controlled in accordance with the character of the yarn to be treated. Recently a vacuum principle has been adopted to aid penetration and cooling units have been added.

The most commonly employed general-purpose machine employing steam today employs also water. In this a steam pipe meets a water supply to provide a wet spray. When desired, air pressure may be substituted for steam pressure to do the work of atomizing the water, and steam may then be employed only for heating. The yarn is not subjected to the spray, but to the heated and highly humidified atmosphere which the spray and heat-

Machine for taming filling with steam and water



Yarn-conditioning equipment employing chemicals

ing arrangement afford. No more than 3 min. is required to set even a high twist, and the filling may be sent to the looms within ½ hr. after leaving the machine. The result is a saving in time, labor, material, and storage space.

The development and adoption of modern humidification systems throughout the departments of the mills, although aiding in the taming of the fibers, did not do away with the necessity for conditioning filling to eliminate kinking. Instead, it suggested a new method of conditioning—namely, the building or setting aside of a small room in which the filling could be subjected to a high humidity. For ordinary twists this method has been found to give satisfaction in a number of cases. It has the disadvantages, however, of not affording continuous operation and of requiring more time (24 hours at 90% relative humidity, for example). Futhermore, it requires considerable space, and care must be taken to see that all bobbins are properly exposed to the humidified atmosphere—that is, that they are not crowded into boxes, even if the boxes employed are perforated.

A recent development along this line is a conditioning chamber in which water is not sprayed into the atmosphere but is absorbed by a current of air passing over a vessel of heated water. The interesting theory upon which this is based is that an excess of moisture in the air is absorbed too quickly by the outer layers of yarn on the bobbin, thus blocking the passage of the humidified air to the interior of the bobbin. So far this equipment has been applied only to the conditioning of silk for hosiery, but its suitability for conditioning filling may be worth investigation.

A recent radical departure in the development of equipment specifically for taming the filling has been largely the result of a new idea in conditioning. This is the adding of a small amount of certain chemicals to the water. The chemicals which are being so used include glycerine, ethylene glycol, diethylene glycol, calcium chloride, zinc chloride, and pine oil. One of the most popular compounds for this purpose is a proprietary product, and the formula has not been made public—although it is believed to call for several selected chemicals in balanced proportion. The purpose of the chemicals is primarily to facilitate speedy and thorough penetration, although in addition certain mixtures provide what is called a staying-in quality—that is, they enable the yarn to retain its moisture longer, which is an important point in the case of sales yarn. An antiseptic is often included to prevent mildew; and, if needed, an anti-moth chemical can be included. Generally the solution does not contain more than 5 or 7% of the compound, and the total cost of conditioning filling with chemical aid is not usually over 1/10c. per pound. The chemicals are not found to affect the dyeing, bleaching, mercerizing, or other finishing.

The speed of penetration which the chemicals afford makes it possible to conduct the operation continuously without the application of heat. Less than 2 min. is usually required, and the yarn can go practically immediately to the looms. In this system it is usual for the bobbins to be distributed evenly by automatic means on an endless belt and so carried under a series of spray heads from which the solution in vapor form is forced continuously toward them. The bobbins are automatically turned over as they move through the machine in order that all sides will be exposed to the spray. The type of head which has been most widely adopted to date employs a revolving roller partly immersed in a bath of the solution, with a revolving brush above the roller serving to throw off and atomize the film of solution on the roller surface. The amount of solution to be sprayed can be easily controlled by varying the speed of the revolving roller. No special construction of bobbin is required, with the exception that the rings must be corrosion-resistant.

The machines are built in various capacities ranging from below 1,000 up to 5,000 lb. per hour. Excess liquid not taken by the yarn is caught by a pan below, cleaned automatically, and pumped back to service.

The chemical treatment has been adopted by some mills employing the older types of equipment, including the watering can and the humidified room. A "home-made" device which we have seen recently resembles an ordinary shower bath. The spray head in this case is fed with a solution of a pine-oil compound in water (1½ pts. of the former to 50 gal. of the latter). The solution flows by gravity from a tank, and the head is located above a box into which the bobbins are dropped continuously by a conveyor. It is supposed that as fresh bobbins arrive the ones underneath will be shielded from the spray and that therefore conditioning will be uniform throughout the lot.

As in the case of the other methods of conditioning, there are no set rules for the intensity of the chemical treatment. So many factors—such as character of fiber, count of yarn, amount of twist, and previous moisture content—affect the extent of conditioning necessary that trial-and-error and experience are at present the only guides.

High twists still require steam for setting; and where the yarn is to be conditioned with chemicals, it is passed through a steaming chamber on its way to the conditioning machine, the two units being connected for continuous operation. Some cotton mills steam those yarns which have a twist of four times the square root of the count or more, and simply moisten those having less twist; but many other mills place the dividing line at five times or higher.

Gradually there is being brought about some degree of uniformity in conditioning methods where certainly little short of chaos existed before. There is still a long way to go before the operation of the process is reduced to an exact science. Little study has been given thus far to the effects of conditioning on other properties of the yarn than kinking. Too much moisture in wool filling, for example, will cause the cloth to shrink unevenly, because it will emphasize the irregularities of spinning. Moisture variously affects different yarns with respect to their ability to withstand sudden strains or prolonged tension. It is known that moisture increases the strength of cotton yarn, and use might be made of the fact.

Machine Control

BENEFITS CONSUMERS AS WELL AS EMPLOYERS AND EMPLOYEES

ORDERLY planning to keep production in balance with demand is in the best interest of consumers as well as of employers and employees. This is B. B. Gossett's answer to the criticism which consumer representatives have advanced regarding the method of control of over-capacity represented by the cotton textile code's 80-hr. week limitation on machine operation.

Speaking on May 2 at the annual meeting of the Chamber of Commerce of the U. S. in Washington, Mr. Gossett, who is president of Chadwick-Hoskins Co., Charlotte, N. C., said:

B. B. Gossett, who spoke in favor of balancing production with demand

This criticism is for the most part based on two erroneous premises: First, that this provision allows less efficient producers to share the market on equal terms, and that instead, these high cost plants should be permitted to die, and, second, that under the provision, efficient enterprises that could afford to offer goods at low prices are denied the opportunity.

Representatives of consumers have expressed themselves as being in sympathy with the purpose of preventing the accumulation of excessive stocks which threw a whole market into distress, but suggested that planning of this sort be accomplished by some other method of control. One method suggested was limiting the size of any mill's inventory to a certain proportion of past sales. This method, obviously, would give all the advantage to those manufacturers who have in the past disregarded the policy of balancing production with demand and would in the future stimulate volume merchandising at the expense of orderly and conservative merchandising, again tending toward monopoly. In order to prevent this, certain codes have found it necessary, when adopting this method, to accompany it with a provision against selling below cost, which, at best, involves many complications.

Other methods of control have been by allocation of production or by allocation of markets. We make no claim that our method of control of over-capacity is the cure-all for every industrial ill. We do claim, however, that it has worked in the cotton textile industry, which is now on the road to recovery largely because of this means of dealing with its major problem.

Summing up, our method has shown itself to have the following advantages:

1. It is comparatively easy to administer. It virtually polices itself. Every mill is watching its next door neighbor. Most of them do not need to have their next door neighbor watch them, but all need to have that assurance in order to give confidence that the code is being lived up to. In a word, it is an element of protection which is simple and feasible.

2. It puts the small enterprise at no disadvantage and does not tend toward monopoly.

3. It permits an equitable distribution of work for labor in the various communities.

4. It is free from the objectionable features of some other methods of control and leaves the large number of units in our industry on a highly competitive basis. For example, it makes no attempt to freeze business on the basis of past experience. It does not destroy initiative and lead to abandonment of sales promotion and sales effort. It does not limit and retard introduction of new products and new inventions nor lower the standard of our products. On the contrary, it leaves every incentive for greater efficiency, but not at the expense of keeping men and women at work operating machines all night when continuous operation is entirely unnecessary.

5. It puts no undue burden on the consumer.

The ultimate consumer of finished goods is not entitled, nor is it to his ultimate interest, to get products at less than cost. Such a system tends increasingly to destroy all profit in manufacture and distribution. It consequently tends to eliminate the producer as a purchaser of other products. Any such conception of public policy means that for the accomplishment of this end there must be sacrificed the interests of the raw material producers, the manufacturers, the distributors, and the employees of all of them. The ultimate consumer is and has to be an income earner as well as a consumer. At least, this is true aside from an exceedingly small proportion of our population living on incomes from non-productive sources.

Generally speaking, all of us have to qualify ourselves to pay for consumer products by taking part directly or indirectly in the production or distribution of raw materials or manufactured goods. It would be a strange economy that concerned itself exclusively with the interest of the citizen in his capacity of a spender of his income and refused to concern itself with his opportunity to earn that income. I believe, therefore, that we can rely with confidence upon the proposition that orderly planning to keep production in balance with demand is in the best interest of consumers as well as of employers and employees.

As to the actual effect of the machine-hour limitation clause of the code, Mr. Gossett stated:

As a result of this provision there is now a limit on the volume of orders that the former three-shift runners can accept; employment has been spread; the excessive over-capacity has been measurably reduced; small units are being better protected; surplus stocks have not increased alarmingly; and no improper burden has been placed upon the consumer.

The industry is getting back the dollars which it puts into the production of goods and in the main, something for depreciation, and in some branches, something for interest on investment. Its credit has improved and it has been able to secure the necessary working capital to meet the demands made upon it by other provisions of the code and by the Agricultural Adjustment Act in the tax imposed upon the processing of its raw material.

This cotton processing tax, incidentally, has amounted to approximately 80 million dollars during the past eight months. In other words, it is costing the consumer of cotton goods approximately 10 million dollars per month.

Modernization

PROVIDES PROFITS AND PROFITS ATTRACT INVESTMENT

BUSINESS on a no-profit basis, no matter how great the volume, will not attract investment, stated Malcolm Muir, president of McGraw-Hill Publishing Co., Inc., and former division administrator of NRA, in an address May 3, before the annual meeting of the Chamber of Commerce of the U. S. As a case in point, he cited the course of the textile industry during the last five years. Modernization, however, will provide the needed profit motive, he said.

Discussing the question "Conditions Necessary to Attract Investment to Capital Improvements," Mr. Muir first examined the external conditions as they affect industry, particularly with regard to the development of general public confidence which he described as "a first requisite if we are to see a return to private investment of any kind." He then continued:

Malcolm Muir, who drew a modernization lesson from the textile industry

Internal conditions in industry itself offer an opportunity, under the codes, to restore some of this confidence. Profit is the best bait for investment. With the codes in effect, and properly enforced, industry finds itself protected from the chiseler, from design-stealing pirates, from labor-sweaters, and from below-cost-sellers, who, in the past, made profits practically impossible and general conditions in industry intolerable for management and labor alike. Codes raise wages and shorten hours. On the whole they increase costs. But, at the same time, they have the effect of increasing purchasing power and buying time. Through the fair trade practice clauses which are to be found in all NRA codes, industry is given an opportunity to restore the profit system to decent competitive levels. The prohibition in codes against selling below cost should lead to immediate modernization by those industries which are in a position to finance themselves—at least partially.

Let us take, for example, a plant that has enough *modern* machinery to manufacture up to 60% of its capacity. Beyond that point operations must be carried on with obsolete equipment. The plant in question operates under a code that prohibits selling below cost. Naturally, once it begins to use its obsolete equipment, costs will rise. Let us say that the plant in question is now operating up to 56% of capacity. Another 4% and it will have reached the limit of the capacity of its low cost modern machinery. There is only one answer to this condition if the plant is to remain in a sound competitive position, and that is to install new, low-cost equipment in place of the 40% of its equipment that is obsolete. Such a condition, and it is being duplicated many times over with the constantly increasing demand for consumer goods, must lead to investment in capital improvements. . . . .

Profits attract investment. Business on a no-profit basis, no matter how great the volume, will not attract investment. As a case in point, let us look at the record of the textile industry. For our purpose we will divide the whole industry into two sections: First, the consumer goods section, the production and sale of textiles; second the capital goods section, the production and sale of textile machinery—and we shall see how they compare when profits are taken into consideration.

In the consumer goods section, using the industry's basis of 1923-25 figures as an average of 100, we find that that section of the industry was virtually unaffected by the depression in general activity. The index figure for 1929 was 115; in 1930 it was 89; in 1931 it was 93; in 1932 it was 83; and in 1933 it rose to 104. True, there are variations, but not to a sufficient degree to spell catastrophe for any industry.

On the other hand, this business was conducted on a practically non-profit basis. Textile profits in that period were almost nil. Under those circumstances let us examine the figures for the capital goods section of the textile industry during the same period. Using the industry's figure of 100 for 1929 as the index, we find that in 1930 this figure dropped to 67; in 1931 it was 57; and in 1932 is was 39, or 61% below 1929, a disastrous drop as compared with the low of only 17% below normal in 1932 for the consumer goods end of the same industry.

Thus it is clear that actual profit is necessary to attract investment to capital improvements.

Further, it is necessary that industry itself can feel confident that it is going to be permitted to continue making fair profits, and that it is not likely to be hindered in that respect by further legislation, to attract the kind of investment we are discussing. For even in the period which we called prosperous, mistaken though we were, plants that did not make profits could not make capital investments.

Our old friends, supply and demand also enter into this picture. In this case, where the supply of credit is limited and the demand for it great, conditions of investment must be attractive to command the needed new capital. Four years of depression, with the tremendous backlog of unfilled needs which they have created, have done a lot to make investment in capital improvements attractive. NRA and other Government agencies, through the stimulus they have given to purchasing power, have done a lot too. In the present circumstances, and in those that appear in the future, industry once it gets well under way again is in a position to go into years of its greatest productivity and profit-making, and should be able to make a good return on the investments made in it.

Much of this is attributable to NRA which despite increasing costs has, through its fair trade practice stipulations, established business on a sounder competitive basis than it has had for generations. Whether NRA continues as a part of our industrial structure or not, I think that its principles should remain as essential requirements for a flow of private investment to be maintained, and that they will be used by the investing public as a yardstick of sane and fair practice in the conduct of any enterprise in which the investment of savings is invited.

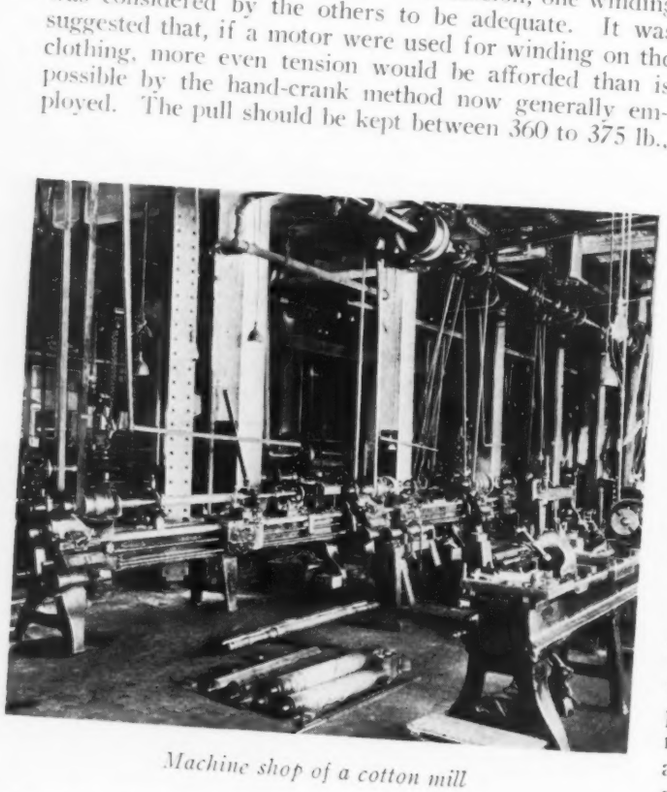
S.T.A. CARDERS, SPINNERS, WEAVERS DISCUSS

Machinery Maintenance

THE maintenance and repair of production equipment, from pickers to looms, formed the basis for discussion at the spring meeting of the Eastern Carolina Division of the Southern Textile Association, held at North Carolina State College, Raleigh, April 26. New officers for the division elected at this time are M. R. Harden, chairman, and J. L. James, secretary, both of Erwin Cotton Mills Co., West Durham.

In the discussion on pickers, it was pointed out that special attention must be given at overhauling time to cleaning out the slow bearings, such as those at the screens, because the grease has a tendency to harden in the grooves and resist further pressure from the grease gun. The segments of eveners should be oiled with two or three drops every six months and should be taken out and thoroughly cleaned once a year, it was recommended, although picker men were warned by several speakers against the danger of applying too much oil to these parts.

Inquiry disclosed that only one carder at the meeting considers it necessary to remove clothing from a card cylinder after applying it once in order that it may be applied a second time and made sufficiently tight. With suitable atmospheric conditions and tension, one winding was considered by the others to be adequate. It was suggested that, if a motor were used for winding on the clothing, more even tension would be afforded than is possible by the hand-crank method now generally employed. The pull should be kept between 360 to 375 lb., it was said, although one carder stated that he had found 200 lb. satisfactory. The employment of experts for the work of reclothing was recommended, and from 25 to 30 years was said to be a reasonable life for filet properly applied. For grinding high and low flats it was suggested that a weight or other device be employed to hold the flats against the grinder.



Machine shop of a cotton mill

In the matter of leveling and aligning frames, discussion brought out that, in the opinion of many, the best procedure today is to hire special equipment for doing this or enlist the services of various specialists now in the business, rather than to employ the old cord and wood-block method. Overloaded motors and out-of-plumb spindles are often due to disalignment of machines, it was said.

A difference of opinion was uncovered among the spinners with respect to the advisability of a mill's doing its own renecking of drafting rolls; but it was generally agreed that refluting should not be attempted as, even if it is accomplished in a manner not detrimental to the leather coverings on top rolls, it will reduce the diameter of the steel rolls. Attempts to raise the flutes to their original height narrows them and causes cutting or grooving of the top-roll leathers. Shifting rollers from one side of the frame to the other was said to prove beneficial as a temporary expedient in overcoming the effect of worn flutes. One spinner stated that he had known steel rollers to last as long as 32 years.

The life of spinning bands depends on the yarn twist or spindle speed, the diameters of the cylinder and whorl, the atmospheric conditions in the spinning room, the tension on the band, the material of which the band is made, the size of the band, and the ability of the band boy. A production of 550 to 600 bands per 80 hr. can be expected from a good band boy, it was asserted. The following consumptions of spinning bands were reported: 100 bands per 1,000 spindles per 80 hr. and 72 bands per 1,000 spindles per 80 hr. The latter bands were used on 8-in. cylinder and $1\frac{1}{8}$-in. whorl, with a spindle speed of 7,000 r.p.m.

Few weavers present were in favor of overhauling looms at established intervals, as it was felt that the fixers should be responsible for keeping them in repair; but several expressed the opinion that a loom should be carefully inspected by the fixer every time a warp comes out. A method suggested for placing responsibility for loom repair when the weave room is on two shifts was to have the day-shift fixers responsible for half the looms and the night-shift fixers responsible for the other half. In checking the work of loomfixers it was suggested that the overseer examine a specific part of each loom every day. A similar policy was proposed for the loomfixers themselves.

Shuttle life was reported to run from 42 weeks to two years, but a good average was said to be one year. It was recommended that when new shuttles are installed the shuttle boxes be realigned to insure their being parallel. One weaver has his shuttles inspected once a month, at which time rough places are polished off and a high-grade tallow applied to reduce wear. The shuttles are permitted to lie over a week-end after treatment.

Is the Percentage

AGAINST THE SMALL MILL?

(From TEXTILE WORLD'S *Southern Office)*

LATE one afternoon, a wandering reporter and the president of a small cotton mill chanced to meet in a southern city. These two, acquaintances of long standing, strolled slowly down the street and eventually into a restaurant. After dinner, the talk turned to a discussion of the problems confronting textile mills of today.

"Your paper," remarked the executive, "published a very fine article, not so long ago, dealing with the problems facing the small mill. But you failed to discuss in detail the factor which is greatly worrying many small plants at present—disproportionate manufacturing and overhead costs."

"But I thought that was a problem which the small mill has always had to face, a problem which careful management can offset," answered the reporter.

"Yes," admitted the executive, "we have always been confronted with the fact that the large unit is able to undersell us, unless we cut every possible corner in management—and cutting corners by combining jobs and the like is often a dangerous business."

He settled back in his chair and continued: "Most people realize in a general sort of way that a big unit can manufacture a given article more cheaply than a small unit, under similar conditions. Few people know the reason for this. For example, a mill ten times the size of mine does not pay its president ten times my salary, yet it has ten times the production of my mill over which to distribute that salary. This applies generally to all salaries and to many other expenses. We pay for power in the high brackets, whereas the large plant buys a goodly portion of its power at a much lower rate. Take a small item like picker sticks. We pay 10% more than the large mill which buys them in big lots."

The executive leaned forward in his chair as he began to warm up to the subject which had been close to his heart for a long time. "Back in the old days of the 110-hour week," he continued, "we didn't have it quite so tough. Of course we had our troubles then too, but we had this advantage: A small mill, especially when isolated, often paid lower wages than the large company. This saving helped us to compete with the big mill on a fairly even basis.

"Since the advent of NRA, we are beset with a few new problems. Now, don't misunderstand me. We are entirely in sympathy with this move and realize that it has been a great boon to the industry as a whole, but it has, to a certain extent, increased the burdens on the small mill, temporarily I hope.

"We now pay the same wages as the big plant, losing one of our former advantages, slight as it may have been. Occasionally, we are forced to turn down an order because the limited machine hours prevent our completing it within a stipulated time. In the old days, with no time limit on our machines, you may rest assured that we were seldom unable to deliver the goods on time. To me, it seems that the 80-hour week has accentuated some of the old problems and possibly lessened the difference in others. Why don't you get busy and show a comparison of certain common manufacturing and overhead costs between a small mill and one of, say, ten times its size, pointing out the change, if any, which is caused by the shortened week?"

"Such a comparison *would* be interesting!" exclaimed the reporter:

So here is the study. (See Table I above):

Before detailed analysis of the table the reader should firmly fix in his mind two facts:

1. The figures shown on this page are purely hypothetical and pertain to no actual mill.

2. The figures strive to represent an average condition and make no effort to parallel individual or extreme cases.

The comparison shown here represents one opinion as to the extra cost required to operate a 200-loom fine-goods cotton mill in competition with a unit ten times as large, or a 2000-loom mill. Some authorities contend that 13.4% extra cost is excessive; others claim it is far too low.

It will be noted that, calculated upon the basis shown, "fixed costs" such as depreciation, taxes and insurance are in proportion, regardless of size of mill or hours of operation. This is assuming, of course, that the two mills are similarly situated, geographically and politically.

As our executive points out to the reporter, salaries are considerably out of proportion—262% higher in the small mill to be exact! Miscellaneous expense, another big difference amounts to 300% more in the small mill. This includes such costs as auditing charges, legal fees, association dues, office expenses and travel accounts.

On the basis shown here, it costs the small mill nearly

TABLE I—Comparative Manufacturing Costs in a 200-Loom Mill and in a 2000-Loom Mill Producing Fine and Fancy Cotton Goods

Items	Total Cost Per Year		Cost Per Loom Week of 80 Hours		Cost Per Yard of Cloth		Higher Cost in Per Cent to Operate 200-Loom Mill on 80-Hour Week
	200-Loom Mill	2000-Loom Mill	200-Loom Mill	2000-Loom Mill	200-Loom Mill	2000-Loom Mill	
Depreciation	$18,000	$180,000	$1.80	$1.80	$.0072	$.0072	0.0%
Insurance	1,200	12,000	.12	.12	.0005	.0005	0.0%
Taxes	3,500	35,000	.35	.35	.0014	.0014	0.0%
Executive, Superintendent and Office Salaries	14,500	41,000	1.45	.41	.0058	.0016	262%
Supplies and Repairs	20,000	180,000	2.00	1.80	.0080	.0072	11%
Power and Fuel	21,000	170,000	2.10	1.70	.0084	.0068	24%
Miscellaneous Expenses (Less Credits)	4,000	10,000	.40	.10	.0016	.0004	300%
Labor	125,000	1,200,000	12.50	12.00	.0500	.0480	4%
Total Manufacturing Costs	$207,200	$1,828,000	$20.72	$18.28	$.0829	$.0731	13.4%

1c. a yard more than the large mill, to produce 2,500,000 yd. of a certain fabric, the small mill's yearly output while operating 80 hours a week; a total difference of $25,000. It is interesting to note that this amount is equivalent to the processing tax on goods weighing six yards to the pound.

The executive also mentioned the problem of inflexibility, which occasionally prevents acceptance of an order too large too complete within contract-time. In the old days, a mill often ran 144 hours a week if rushed. On a certain type cloth, the 200-loom mill produces approximately 140,000 yd. of goods a month, operating 80 hours a week. The large mill, despite shortened hours, can turn out 1,400,000 yd. of the same material in the same time.

The small mill is seriously handicapped when the market goes stagnant on a certain style of goods for which it is economically balanced. Management is still another problem offering difficulty to the small mill. It is a known fact that the large concern demands, and is able to pay for, the best managerial ability obtainable, leaving the small plant to develop its own or take what is left.

Such are a few of the problems confronting the small mill today. NRA has served, as the executive points out, to accentuate a few of these problems. On the whole, however, the ratio seems to remain in line with what it was before the adoption of the 80-hour week.

With capable management and a few "lucky breaks," the small mill is more likely to show a nice profit than a loss even though the going may often be hard, for the small mill is truly a hardy constituent of the textile industry. The Administration's Committee on Small Industries, now busily at work, may be able to discover a solution to some of the problems confronting the small plants, which comprise 80% of our American manufacturing concerns.

[*Editor's Note:* The above is just one side of the story. Thoughts on any phase of this "small mill" problem would be gratefully received.]

RFC Loans to Textile Mills

THREE FIRMS GET TOTAL OF $2,900,000

THE Reconstruction Finance Corporation has made loans totalling $2,900,000 to three textile companies, through the Textile Industry Mortgage Corp., as follows: H. R. Mallinson & Co., New York, $500,000; United States Finishing Co., Providence, R. I., $1,400,000; Botany Worsted Mills, Passaic, N. J., $1,000,000.

The general plan by which this mortgage corporation serves as a medium for securing RFC funds for individual textile firms, was outlined in the March issue of TEXTILE WORLD.

It is intended that the Mortgage Corporation will continue to receive applications for loans from any companies engaged in the textile or allied businesses without limitation, and if necessary the authorized stock may be increased from time to time.

Conditions for Loans

Applications for loans will be received upon the following conditions:

1. The applicant must furnish security satisfactory to the mortgage corporation and also satisfactory to the RFC, with which its obligation will be repledged, the security to include a first lien upon the fixed assets of the applicant;

2. The loans to be made for a period of not exceeding three years and to bear interest at the rate of 6% per annum, payable quarterly;

3. Loans to be conditioned upon the applicant agreeing, upon the advance of the loan, to apply not less than 10% of the loan to the purchase of capital stock of the mortgage corporation.

As a condition of advancing the funds to be loaned out through the mortgage corporation, the RFC may require:

1. That the capital and surplus of the mortgage corporation or a part thereof be invested in U. S. Government bonds and deposited with the RFC as additional security for advances by it to the mortgage corporation;

2. That no dividends may be paid by the mortgage corporation without the consent of the RFC.

Advances by the RFC to the mortgage corporation shall be at the interest rate of 4% per annum and, assuming $10,000,000 advances to applicants by the mortgage corporation, that corporation will net 2% thereon or $200,000 per annum in addition to such income as may be earned by the investment of its capital, provided all loans made by the mortgage corporation have been paid in full with interest thereon. Upon expiration of three years, the corporation would therefore have available for distribution to its stockholders its capital of $1,000,000 and accumulated earnings of $600,000 plus income upon its capital and less operating expenses. On this basis, borrowers from the mortgage corporation pay a net interest rate of approximately 4% per annum.

Joseph S. Maxwell, vice-president of the New York Trust Co., is president of the corporation; George B. Bacon, vice-president of the Merchants National Bank of Boston, is vice-president; and these, with A. G. Myers, president of the Citizens National Bank of Gastonia, N. C., will constitute the original board of directors. Snelson Chesney, 55 Madison Ave., New York, is secretary and treasurer. Additional persons will be elected directors from time to time to represent companies which make loans through and acquire stock of the mortgage corporation.

Where to Apply

Applications for loans should be made in accordance with RFC Circular No. 11, on RFC. Form 143, and be accompanied by the data required by such form, obtainable at the offices of the Reconstruction Finance Corp., 33 Liberty St., New York, or at any Federal Reserve Bank, or RFC agency, or at the offices of the Textile Industry Mortgage Corp., 55 Madison Ave., New York.

WIDESPREAD ACCEPTANCE MARKS THE FOURTH

National Cotton Week

A Eulogy
"Cotton's in fashion . . . Rightly in fashion . . . Cotton for coolness . . . Cotton for comfort . . . Cotton for color . . . Dresses in cotton from morning till midnight . . . From sturdiest ginghams to sheerest of sheers . . . Cottons for coats, bags, neckwear, gloves . . . For everything worn by those who know fashions . . . Cotton's in fashion as never before . . . Not only in this Week of Cotton, but for a whole Cotton Summer . . . Cotton's in fashion because people like cotton!" —Such are the enthusiastic words of Amos Parrish, merchandising authority, as he discusses cotton's place in the fashion firmament, in contemplation of National Cotton Week.

COUNTLESS organizations, directly and indirectly interested in the promotion of cotton, are doing their utmost to make the week of May 14 to 19 an outstanding period in the history of merchandising. Cotton is king this week—over 30,000 stores say so, an increase of several thousand over last year!

As this issue reaches you, the nation-wide observance is in full swing. Cities as diversely located as Portland, Ore.; Hartford, Conn.; Philadelphia, Pa., and Dayton, Ohio, are putting on style shows, festivals, and contests—all glorifying old King Cotton.

A few of the reasons for the greatly increased interest this year in an already broadly recognized event, are as follows:

1. The cotton textile industry has been highly publicized on the nation's front pages for the last year, with its quick adoption of NRA Code No. 1, and its expansion of employment to 1929 levels.

2. Style tendency for several years has been steadily in the direction of cotton, and it is held to be "quite the thing" by those who set the style-pace. Cotton is no longer considered a substitute for the more expensive fibers. It has made a distinct place for itself as a beautiful and useful fabric medium.

3. Men's apparel stores are featuring excellently tailored, pre-shrunk cotton suits, adaptable for both business and sports wear.

4. Women's specialty shops and small department stores are joining with the large units in laying stress on cotton.

5. Even grocery and drug stores have caught the spirit this year and are featuring products packed in cotton bags and containers.

The Cotton-Textile Institute, under the direction of George A. Sloan, president, has gone to great lengths to assist the trade in making National Cotton Week an overwhelming success. A "Directory of Store Selling Helps," brim-full of suggestions for promoting cotton, has been prepared and mailed to thousands of stores. Similar bulletins describing methods of putting on style shows, window displays and contests of various sorts have been sent out all over the country.

States, cities, governors, mayors, debutantes, laundrymen, newspapers, magazines, the radio, school children and other groups and institutions too numerous to mention are all working together to make cotton week an outstanding success.

Little Rock, Ark., and Memphis, Tenn., are again leading the way with cotton carnivals which rival in magnificence the historic Mardi Gras of New Orleans. Railroads and hotels throughout the country are giving recognition to National Cotton Week on special menus of woven cotton. Laundries and retail stores are putting on washing demonstrations in display windows. Newspapers are devoting countless columns to cotton publicity, while fashion, motion picture, pattern, men's, women's and general magazines are featuring articles on the use and wearing of cotton.

National Cotton Week, in its brief four years of existence, has become an important event in the world of commerce. Specific proof of this is perhaps best shown in the reports of activity by New York resident buyers which began several weeks ago. These reports showed heavy buying of cotton goods by retail stores evidently in anticipation of increased sales beginning May 14. This is only one of the many pieces of evidence which go to substantiate the fact that National Cotton Week is a fundamentally sound development in that it benefits many trades all along the line from grower to ultimate consumer. Statisticians estimate that more than 12,000,000 people are employed in the growing, manufacturing and distributing of cotton and cotton goods in the United States.

No wonder cotton week has become a fixture and a leader among the "weeks" which parade before the American people each year. It has proved to be good business both for the mills on the primary market which initiated it, for the manufacturers and distributors who have supported it, and for the consumers to whom it gives opportunity to select advantageously from the season's newest and best in cottons.

New Twist Formula

BASED ON RECENT INVESTIGATIONS OF RELATION BETWEEN TWIST AND STRENGTH

By Carl D. Brandt
Head of Textile Department
Texas Technological College, Lubbock

◆ *It would be difficult to say how long we have employed "the square root of the yarn number multiplied by a constant" as a formula for cotton-yarn twist. Recent tests conducted at the Texas Technological College indicate that this familiar formula is not flexible enough and should be replaced by a new one, as explained herein.*

There are other interesting points brought out by the tests, such as evidence that the best two-ply yarns are produced from low-twist singles. A previous article discussing various phases of the same investigation appeared in our Feb. 14 issue, page 71.

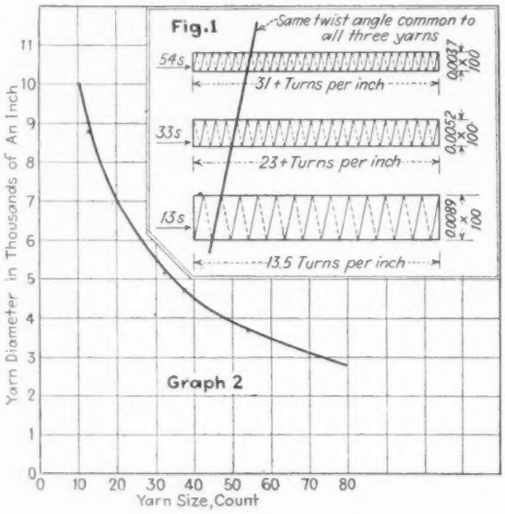


Fig. 1
Same twist angle common to all three yarns
54s
31+ Turns per inch
0.0037 x 100
33s
23+ Turns per inch
0.0052 x 100
13s
13.5 Turns per inch
0.0089 x 100
Graph 2
Yarn Diameter in Thousands of An Inch
Yarn Size, Count
0 10 20 30 40 50 60 70 80
0 1 2 3 4 5 6 7 8 9 10 11

Fig. 1. Twist angle and turns per inch for yarns of maximum strength

Graph No. 2. Diameters of cotton yarns of different counts containing twists that produce maximum strength, as measured on a Randall & Stickney thickness gage under a ⅜-in. presser foot

WE determined the diameter of different counts when spun with that twist which gave the maximum strength. These measurements were made on a Randall & Stickney gage under a ⅜-in. presser foot. It is realized that the values obtained are not the true apparent diameters, as a presser foot exerts a slight amount of pressure upon the yarn. However, when tension is applied to a yarn, the fibers tends to grip and the diameter is reduced. A definite internal pressure is set up, and undoubtedly this condition is similar to that caused by the presser foot of the gage. Therefore, it would not seem illogical to use these gage readings directly rather than the diameter of the uncompressed yarns. Either might be used, but since it is much easier and quicker to obtain the diameter by using the gage, this method is suggested. As a matter of information, the compressed diameter was found to be approximately 80% of the uncompressed. Graph No. 2 expresses the values for yarns from 10s to 80s.

It was also found that the amount of twist present in a certain yarn size affects the diameter reading on the gage. As an example, a range of twists in the 54s gave the following readings:

Twist Constant	Dia. in Thousandths of In.
2.50 $\sqrt{\text{count}}$	3.03
3.50 $\sqrt{\text{count}}$	3.09
4.25 $\sqrt{\text{count}}$	3.70
5.00 $\sqrt{\text{count}}$	3.67

The fact that the diameter increases when the twist increases is probably due to the fact that higher twists tend to make the yarn more compact and so offer more resistance to the presser foot of the gage. The yarn becomes more compact as the twist approaches the point of maximum strength.

Fig. 1 shows the twist conditions as they exist in the three different yarn sizes; namely, 13s, 33s, and 54s. The appearance of the direction of twist or twist angle is somewhat misleading, as the scale of the drawing has been greatly enlarged (26.2 times for yarn diameter and only 1.31 times for length) in order to show more clearly that the same twist angle is common to all three yarns. Neither does the fiber form an angle exactly as shown, but that might be disregarded in considering this point. Referring back to Graph No. 1 (TEXTILE WORLD, Feb. 14, page 71) it will be found that for yarns of maximum strength the 13s will have 13.5 t.p.i., the 33s will have 23.2 t.p.i., and the 54s will have 32 t.p.i. Since in the diagram each length shown represents a 1-in. length of yarn and the total number of turns in each section corresponds to the number required for maximum strength, it is evident that the same angle of twist exists in the yarn, regardless of size, at that twist which produces a yarn of maximum strength.

Old Formula Not Flexible

For a long time 4.75 $\sqrt{\text{count}}$ has been used as the standard for twist in the so-called warp twist yarns. Strength is one of the more important of the required qualities of a warp yarn, and apparently this constant for twist was chosen as the one which was most suitable under average everyday use. The constant is not flexible enough, as it will satisfy conditions for but one yarn size in each range of staple lengths. The yarn size in the case of the staple used in this test would be 80s. Below 80s the formula would give too much twist, resulting in a weaker yarn and less production.

Making use of the facts here presented, it will be found that there is a direct relation between the yarn diameter and the twist per inch at the point of maximum strength. Expressed as an empirical formula it becomes:

$$\text{Diameter} \times \text{Turns per inch} = \text{Constant}$$

The diameter used is expressed in thousandths of an inch and is that as read on the Randall & Stickney gage.

If the above formula is used and the results are expressed in tabular form, the values become:

Yarn No.	T.P.I.	Dia.	Constant (T.P.I. × Dia.)
54s	32.0	3.7	118.5
33s	23.2	5.2	120.5
13s	13.5	8.9	120.0
10s	11.7	10.2	119.5
80s	42.7	2.8	119.0

In the above table the last two values, for 10s and 80s, were obtained by extending the curves which were located as to direction by the test values obtained from the four different yarn sizes actually spun. It will be seen that at both extremes the formula apparently holds.

The value of the constant, while it averages 119.5, might be assumed to be 120 for the sake of convenience. This will change as the staple length of the cotton spun changes. A shorter staple will require a larger constant, while with a longer staple the value will become less. On a rather limited amount of work done with a 1-in. staple, it would appear that the constant will be approximately 135, instead of the above 120, which is for a staple length of $1\frac{1}{8}$ in. There might be some definite relation between the staple length and the value of the constant, but further work is needed to determine it.

By solving the formula for turns per inch, we obtain:

$$\text{Turns per inch} = \text{Constant} \div \text{Diameter}$$

Following the analysis of the single yarns, the different sets of varying twists were made into two-ply with a wide range of ply twists.

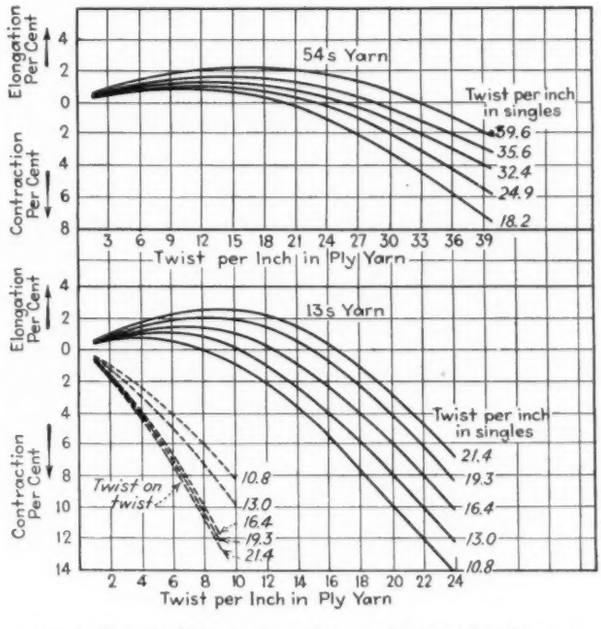
Graph No. 3 shows the elongation and contraction as it takes place during the twisting. In all cases when single yarns are made into two-ply with reverse twist, the two-ply becomes longer than the singles up to a certain point; then, after that, contraction takes place. The point at which elongation stops and contraction begins depends upon the amount of twist that the singles contains. It is quite apparent that slight amounts of twist have a greater effect on coarse yarns than on fine.

When the twist of the ply was run in the same direction as that in the singles, there was no elongation; on the other hand, contraction took place quite rapidly. Here again the rate was dependent upon the amount of twist in the singles, only in the reverse order—the greater the singles twist, the greater the contraction.

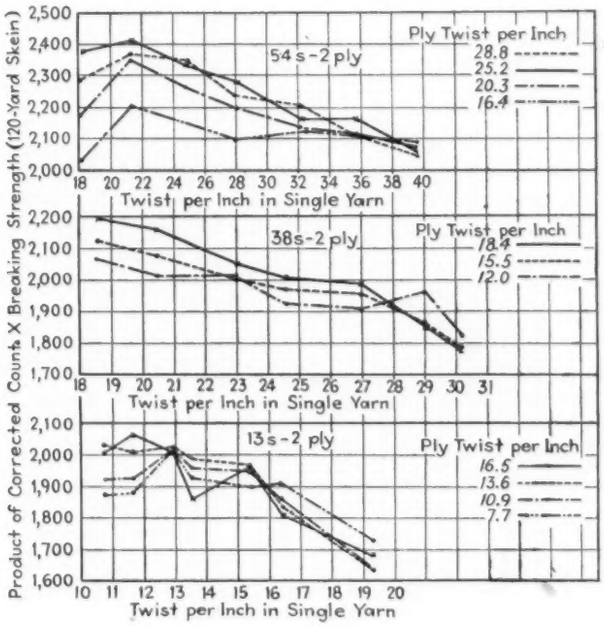
With respect to strength, results are shown on the final Graph, No. 4. The products of count times breaking strength are here given for three different two-ply yarns; namely, 13s, 38s, and 54s. In each case it will be seen that the strongest two-ply is produced from singles having a comparatively low twist. The singles twist-constants for the two-ply 13s and 54s are 3.3 $\sqrt{}$ count and 2.9 $\sqrt{}$count respectively. The point of maximum strength of the two-ply 38s was not located, due to the fact that the range of twist of the singles yarn had not been carried sufficiently low. The least twist in this set was 18.5 t.p.i.; and when this was plied and broken, the skein strength was still increasing. However, making use of the two values previously found, one might predict what twist would probably give the maximum strength. That should be about 3.0 $\sqrt{}$count or 18.5 t.p.i. Therefore, it might be assumed that the first group of points represent the maximum strengths. It will also be noted that in almost all instances one set of singles twist produces the maximum strength in each of the series of ply twists. Within reasonable limits, the ply-yarn strength increases with the ply twist.

Other qualities of the two-ply yarns are also affected by twist. Elasticity is one. Appearance and feel are others. Some of the yarns, especially those with the low singles twist, are soft and lustrous and do not kink. It was also surprising to note the apparent variation in color. The low-twist combinations were somewhat creamy, while the high twists were gray and dull.

In the case of the 54s ply, if a table be constructed with the singles twists running horizontally, increasing from left to right, and the ply twists vertically, increasing from top to bottom, and a line be drawn from the upper left-hand corner to the lower-right, the best-appearing and the best-feeling yarns will be made by those twist combinations appearing above this diagonal. In many instances, strength must be sacrificed for certain other qualities, but in any case it would appear that the low-twist singles yarns produce the best two-ply.



Graph No. 3. Effect of various twist combinations on elongation and contraction during twisting of two-ply cotton yarn



Graph No. 4. Strengths of two-ply yarns made with various combinations of twist

Doubtful Diameters...

SERIOUS DISAGREEMENT IN YARN FORMULAS FOR FABRIC DESIGNER

By R. A. C. Scott

◆ *Knowledge of the yarn diameter is a great aid to determining the number of ends and picks which should be inserted in a proposed fabric. Mr. Scott, who is a particularly able woolen and worsted stylist and designer, has been comparing the famous Ashenhurst formulas for diameter with those of Woodhouse and Brand, and he has noted a serious disparity between them—particularly in the case of cotton and woolen yarns. He believes, however, in the reliability of the Ashenhurst basis. It is hoped that other technicians who have studied the problem—whether in conjunction with woolen, worsted, cotton, silk, rayon, or other yarns—will contribute their views on this important and controversial subject.*

THE late T. R. Ashenhurst in his book entitled "Textile Calculations," published in the year 1880, gives a very exhaustive treatise on yarn diameter and its relation to cloth structure. In spite of the fact that other and more recent studies on this rather debatable subject have been published, the theories advanced by him are still widely used and generally considered a true and reliable guide for all practical purposes.

The fundamental principle is based on the assumption that a thread is a flexible cylinder of uniform density and as a consequence should have a constant diameter. From this base, the various theories of yarn diameters have been built up.

The most common and widely practiced method of ascertaining the respective yarn diameters is by extracting the square root of the number of yards of yarn per pound and deducting 8% for silk, cotton, and linen yarns; 10% for worsted yarns; and 15% for woolen yarns. These deductions are purely arbitrary and have no physical interpretation, although at one time they were wrongly described as "the allowances for surface fiber." Examples:

1. The diameter of a 1/50s cotton yarn = $\sqrt{50 \times 840} - 8\% = 1/188$ in.
2. The diameter of a 1/25s worsted yarn = $\sqrt{25 \times 560} - 10\% = 1/106$ in.
3. The diameter of a 4-run woolen yarn = $\sqrt{4 \times 1600} - 15\% = 1/68$ in.

Therefore, if the diameter of 1/50s cotton is 1/188 in., it is obvious that 188 threads can be placed side by side in an inch; and in like manner, 106 threads of 1/30s worsted and 68 threads of 4-run woolen. It is more convenient, however, to express the diameter of a yarn as so many diameters per inch rather than as a fraction of an inch. This is known as the reciprocal of the diameter.

Having thus explained the method advocated by T. R. Ashenhurst for ascertaining the yarn diameter, it is now necessary to illustrate briefly its relationship to cloth structure.

The maximum setting in the loom of "square" cloths is approximately as follows:

$$\text{Ends or picks per inch} = \frac{\text{Diameters per inch} \times \text{thds. in weave}}{\text{Thds. in weave} + \text{intersections in weave}}$$

Ends may be classified as warp units; and intersections, as filling units.

For further information and setting examples I would respectfully refer the reader to the following two articles by the writer, published in TEXTILE WORLD, Sept 13 and Dec. 13, 1930, under the respective titles "How Many Ends and Picks Does the Weave Call For?" and "Non-square Woolen and Worsted Fabrics."

Thomas Woodhouse and Alexander Brand published a rather interesting treatise on this subject under the title of "Yarn Diameters and Cloth Structure" (printed in article form by TEXTILE WORLD; and in book form, by Macmillan Co., New York), which they claim to be based on actual experiments. Like Ashenhurst, they also adhere to the basic principle of fiber density in computing the approximate diameters of yarns. By way of insuring a fairly accurate standard of "conditional density" for each fiber, a large number of observations were made of yarns and cloth in various stages of the manufacturing process. The individual result of the six methods employed for ascertaining the conditional density of the jute fiber was as follows:

Fiber	Condition	Conditional Density
Jute	Cloth in press-packed bale	0.7257
Jute	Fiber in press-packed bale	0.6797
Jute	Cloth in roll form	0.5691
Jute	Yarn on weaver's beam	0.4809
Jute	Yarn in spool or cheese form	0.5526
Jute	Yarn in cop form	0.5309
	Average of the 6 conditions	0.5898

Space does not permit of an exhaustive study of this phase of the subject at this time. Suffice it to say that, after the various factors likely to influence these results had been considered, it was decided that the best values from a practical standpoint were those obtained from the yarn on weaver's beams. The following table gives the resultant conditional densities of eight different fibers:

Fiber	Approx. Conditional Density	Fiber	Approx. Conditional Density
Net Silk	0.66	Spun Silk	0.53
Hemp	0.57	Jute	0.48
Worsted	0.56	Cotton	0.40
Linen	0.54	Woolen	0.30

Actual experiments were made in weaving cloth, using jute yarns, in order to ascertain the working diameter of the thread. The yarn used in eight different tests was a 16-lb. per spyndle jute yarn, and the accepted and most practical result was found to be 1/30 of an inch, from which the formula "$\sqrt{}$count $\div$ 120 = working diameter of yarn," was deduced.

It may be well to note that the count of jute yarn is based on the number of pounds per "spyndle" of 14,400 yd. Therefore, to obtain the equivalent count in any other system, it is first necessary to convert this "fixed length" system to the "fixed weight" basis. For example, 16 lb. per spyndle means that there are 16 lb. of yarn in

14,400 yd. Hence, 1 lb. of yarn is 14,400 yd. ÷ 16 = 900 yd. The equivalent counts in cotton, woolen, and worsted are given below:

$$\text{Cotton} = \frac{900 \text{ yd.}}{840 \text{ yd. per hank}} = 1.0714$$

$$\text{Woolen} = \frac{900 \text{ yd.}}{1600 \text{ yd. per run}} = 0.5625$$

$$\text{Worsted} = \frac{900 \text{ yd.}}{560 \text{ yd. per hank}} = 1.6071$$

Due to the fact that conditional densities of these three types of yarn vary, the working diameters will be higher or lower according to their relative individual densities.

The following formula will give us the equivalent diametral count:

$$\frac{\text{Equivalent count} \times \text{conditional density of yarn}}{\text{Conditional density of jute yarn}} = \text{Equivalent diametral count}$$

Hence:

$$\text{Cotton} = \frac{1.0714 \times 0.40}{0.48} = 0.8928$$

$$\text{Woolen} = \frac{0.5625 \times 0.30}{0.48} = 0.3516$$

$$\text{Worsted} = \frac{1.6071 \times 0.56}{0.48} = 1.8750$$

From the weaving experiments previously referred to, the working diameter of jute yarn was found to equal $\sqrt{\text{count}} \div 120$. Hence, 16-lb.-per-spyndle jute yarn $= \sqrt{16} \div 120$, or 1/30th of an inch.

The diameter of yarns in fixed-length system is directly proportional to the square root of the count, whereas the diameter of yarns in fixed-weight system is inversely proportional to the square root of the count.

Therefore, the working diameter of

$$\text{Cotton} = \frac{1}{\sqrt{0.8928}} = 1/30 \text{ in.} = \frac{30}{\sqrt{0.8928}} = \frac{30}{0.94} = 32 \text{ approx.}$$

$$\text{Woolen} = \frac{1}{\sqrt{0.3516}} = 1/30 \text{ in.} = \frac{30}{\sqrt{0.3516}} = \frac{30}{0.59} = 51 \text{ approx.}$$

$$\text{Worsted} = \frac{1}{\sqrt{1.8750}} = 1/30 \text{ in.} = \frac{30}{\sqrt{1.8750}} = \frac{30}{1.37} = 22 \text{ approx.}$$

$$\text{Hence: Cotton} = \frac{1}{32\sqrt{\text{Count}}} = \text{Working diameter}$$

$$\text{Woolen} = \frac{1}{51\sqrt{\text{Count}}} = \text{Working diameter}$$

$$\text{Worsted} = \frac{1}{22\sqrt{\text{Count}}} = \text{Working diameter}$$

In place of the intersection theory originated by Ashenhurst, a method of calculating the spacing of yarns by means of diagrammatical illustrations is used. However, it is hardly necessary to go into this system of computing the maximum ends and picks for both plain and twill weaves, as the resultant computations vary very little from those obtained by the intersection theory. It is, however, only fair to add that the system as outlined by Woodhouse and Brand is very interesting and instructive, a study of which well repays the reader.

Having briefly outlined the basic principles underlying the two systems, let us now examine the respective theoretical conclusions and their values from a practical viewpoint. In the following table the comparative yarn diameters of cotton, worsted, and woolen are given:

	Cotton			Worsted			Woolen		
	1/20	1/30	1/40	1/15	1/20	1/30	1 run	2 run	4 run
Ashenhurst	120	146	169	83	96	117	34	48	68
Woodhouse & Brand	143	175	202	85	98	120	51	72	102

In both systems round figures have been used, which, however, can be considered accurate enough for the purposes intended.

It will be noticed that, with the exception of the worsted yarns, quite a large difference exists in the diametral results—a difference which affects practical cloth construction very materially. Assume we wish to construct a well-balanced cloth using 2/2 twill weave. Then, according to Ashenhurst's theory:

$$\text{Maximum number of ends or picks per inch} = \frac{\text{Threads in weave} \times \text{reciprocal of yarn diameter}}{\text{Threads in weave} + \text{intersections}}$$

Therefore:

$$1/40\text{s cotton} = \frac{4 \times 169}{4+2} = \frac{676}{6} = 113 \text{ approx. ends or picks per inch}$$

$$1/30\text{s worsted} = \frac{4 \times 117}{4+2} = \frac{468}{6} = 78 \text{ approx. ends or picks per inch}$$

$$\text{4-run woolen} = \frac{4 \times 68}{6} = \frac{272}{6} = 45 \text{ approx. ends or picks per inch}$$

According to Woodhouse and Brand, the maximum number of ends or picks

$$\text{per inch} = \frac{\text{Threads in weave} \times \text{reciprocal of yarn diameter}}{(\text{Threads} - \text{intersections}) + (\text{Intersections} \times \sqrt{3})}$$

Therefore:

$$1/40\text{s Cotton} = \frac{4 \times 202}{(4-2) + (2 \times 1.7328)} = \frac{808}{5.5} = 147 \text{ approx. ends or picks per inch}$$

$$1/30\text{s Worsted} = \frac{4 \times 120}{(4-2) + (2 \times 1.7328)} = \frac{480}{5.5} = 87 \text{ approx. ends or picks per inch}$$

$$\text{4-run Woolen} = \frac{4 \times 102}{(4-2) + (2 \times 1.7328)} = \frac{408}{5.5} = 74 \text{ approx. ends or picks per inch}$$

Owing to the wide variation in results, especially in the case of the cotton and woolen yarns, it is reasonable to conclude that, no matter how logical a theory may appear to be, its acceptance as an accurate guide is contingent on its practical application. My own varied experience in the textile industry impels me to classify the results obtained by Woodhouse and Brand as of very doubtful practical value. The only reason I can assign for the wide variation in results is the fact that the actual experiments were made with one class of fiber—viz., jute—from which equivalents for other fibers were deduced by mathematical and diagrammatical methods. In doing this it was assumed that all factors were equal in the respective fibers, excepting the rather important matter of relative densities. It is therefore to this assumed relationship of one fiber to another that the possibility of error is most likely to exist.

Be that as it may, I have no hesitation in expressing the belief and conviction that the practical application of any of three constructions calculated according to Woodhouse and Brand's formulas would be considered outside the realms of possibility. For instance, I do know from practical experience that any cloth constructed with more than 45 ends and picks using a good-quality 4-run woolen yarn in warp and filling would provide no end of trouble in the weaving thereof; besides which, the woven cloth, if produced, would not be commercially presentable. Consequently, if actual practice disproves the theoretical results of one fiber, it is logical to conclude that like defects will be met with in the case of other fibers which have the same basis of calculation. Although I unreservedly recommend Ashenhurst's rules as being useful and accurate guides for correct and properly balanced cloth constructions, I fully realize that they can be taken only as guides—judgment and experience being absolutely essential for their proper application to cloth building.

Durability of Blankets

AFFECTED BY FINISH, TENSILE STRENGTH, AND WEIGHT

By Katharine Hess and Dorothy Saville
Kansas Agricultural Experiment Station

INVESTIGATIONS of the heat-retaining qualities of fabrics have proved that warmth is in proportion to the quantity of dead air a fabric will hold, and these researches have, no doubt, influenced the present trend toward light-weight, fluffy blankets with a long nap. However, satisfactory bed covers not only must be warm and light in weight, but must have strength enough to withstand many cleanings. Recent studies have shown the finishing operation, particularly, has a marked effect on the tensile strength and durability of blankets. Although these studies were made primarily to obtain information which will aid the consumer in her selection of blankets, it is believed that certain of the findings are of vital interest to the manufacturer and finisher.

A previous investigation of blanket materials, reported by A. L. Edward, in the *Journal of Home Economics*, March, 1930, disclosed the fact that the strength ranged from 17 to 54½ lb. for the warp and from 3 to 27 lb. for the filling. From the results of this study it has been estimated that a blanket should have a warp strength of at least 35 to 40 lb. and a filling strength of not less than 20 lb. In this connection, George H. Johnson, of the American Institute of Laundering, states that a minimum strength of 15 lb. for the filling is essential in order that the yarns, which are weaker when wet, will withstand the added weight of water in laundering.

For our studies, six popular brands of all-wool blankets were taken, four of which were compared as finished and unfinished materials. It was found that all of these blankets in their unfinished state had a strong filling yarn, the weakest piece requiring a weight of 27 lb. to break a strip 1 in. wide. However, the finishing reduced this strength from 62 to 81%. This left the weakest finished blanket with a strength of only 6 lb. Finishing changed the lengthwise strength of these fabrics but slightly. However, two of them were less than 30 lb. in the original material. Two blankets as they were sold on the market were compared with the other blanket materials. The warp of these was sufficiently strong, but the filling of one had a strength of 9 lb.; and the other, of only 5 lb. That is, of these six popular brands of blankets, only two were strong enough to withstand wear and cleaning for a reasonable period of use.

A comparison of the heat-retaining qualities of the six materials showed a remarkable similarity in the four weak blankets, with the two strong blankets rating much higher. Further comparison of these blanket materials disclosed the fact that the strong, warm blankets were also heavier than the weak blankets.

The four unsatisfactory blanket materials weighed less than 2⅔ lb. for a 73x84-in. single blanket. The two strong and warm materials weighed, respectively (approximately) 4½ and 5⅓ lb. for a 72x84-in. single blanket. A blanket of this size that weighs less than 3½ lb. will probably be lacking in warmth or durability or both. A 68x84-in. blanket that will protect from cold and hold together during cleaning should weigh at least 3 lb.; and a 60x84-in. blanket, 2¾ lb.

The accompanying illustrations show some of the differences noted in the blanket materials studied. Fig. 1 illustrates the variation in the thickness of the materials. The two pieces on the left have sufficient nap to give a high degree of warmth and enough body to withstand wear. The four weak blankets have been napped to such an extent that insufficient body remains.

The surface view of three of the materials, as shown in Fig. 2, emphasizes the differences in the structure of the blanket materials. Here blankets Nos. 1 and 2 are the corresponding blankets in Fig. 1; and No. 3 corresponds to No. 5 in Fig. 1. Both illustrations bring out the fact that the material in blanket No. 2 is different in the kind of fiber and the length of the nap.

The choice of blankets today is based largely upon size, appearance, and weight. The consumer will soon find that a long, compact nap indicates warmth, and that although weight may not indicate strength and durability, extreme lack of weight indicates lack of strength and durability. In view of the fact that out of the six brands of blankets studied only two were reasonably durable, we believe that blanket manufacturers in general will do well to devote some attention to the finishing operations and other factors which determine the heat-retaining qualities and durability of their products.

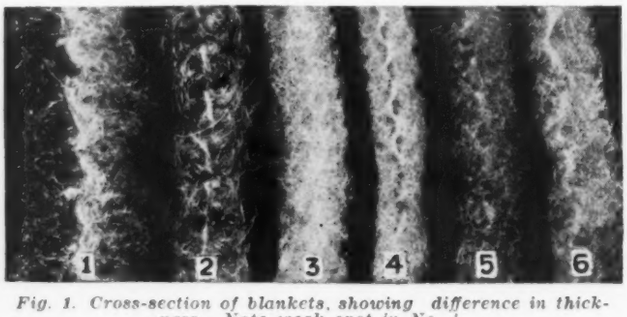


Fig. 1. Cross-section of blankets, showing difference in thickness. Note weak spot in No. 4.

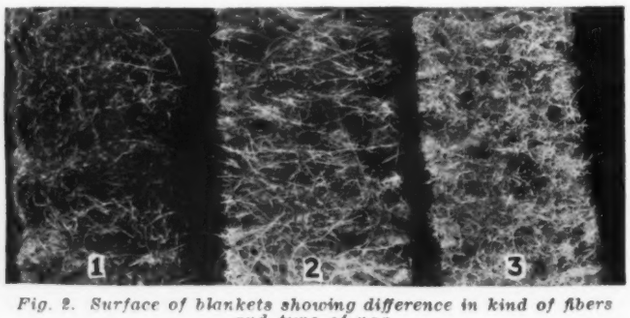
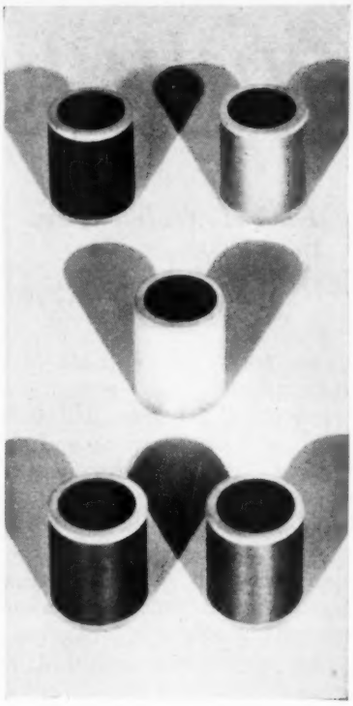


Fig. 2. Surface of blankets showing difference in kind of fibers and type of nap.



Glazing Thread

SIMPLE FORMULAS ARE RECOMMENDED

By James L. Mason

POLISHING or glazing of cotton thread has a two-fold purpose: first, to strengthen and give the thread more body; and second, to protect it with a smooth, lubricated surface. Dressers of the American type are single-, double-, or triple-brush machines, according to the weight or size of the thread to be processed. Formulas are plentiful and often intricate, but the simpler the formula, the better it is.

Generally the single-brush machine may be adapted to take care of all but the heaviest numbers, although it is not economical to run anything heavier than a 16/4 on such machines unless they are equipped with hot drying rolls. Therefore, if a full silk finish is desired on a 16/4 or heavier, a double-brush machine should be used. In order to handle the heavy, sole-sewing, multiple-ply threads, a three-brush machine is almost a necessity. It will give a higher luster and greater production. While some manufacturers seem to be successful in dressing anything on a double-brush machine, the three-brush dresser has many advantages that cannot be overlooked.

The quality of hair used in the brushes is of importance. As a rule, soft, gray Italian horsehair is recommended for white in all numbers; for the finer counts in gray, black, and colors; and for all soft, silk finishes. On the other hand, it is usually considered that the hard, black hair of the old Russian or Chinese type gives a brighter luster on dark colors, blacks, and unbleached threads. This is especially true in the case of threads used in the stitching of leather, where body luster and smoothness are essential.

A good potato starch is the base of practically all formulas. The starch is the adhesive and must supply the body to carry the lubricants. Paraffin, beeswax, and occasionally Japan wax are used for polish and to impart slip to the thread. As one wax alone will not give satisfactory results, it is necessary to use a blend. For example, beeswax is apt to give a tacky feeling unless a little paraffin is added; and if paraffin alone is used, it is not taken up by the thread in a sufficient amount. To produce flexibility, oils are added; coconut is the old favorite, but other oils, including mineral oil, have found favor in recent years.

To prevent breaking down of the size in the trough, it is customary to add some alkali. Usually ¼ of 1% of caustic soda is sufficient, or a somewhat larger quantity of soda ash. Often a little borax will help; but too much borax will produce stiff and rubbery starch. In fact, too much of any alkali will saponify part of the oils and waxes and reduce the luster. About ¼ to ½ pint of formaldehyde should be added to each 50 gal. of size, stirred in as it is cooling. This is an antiseptic which will prevent putrefaction and sour boxes or bad-smelling thread.

Thorough cooking of the starch is essential. It should be brought slowly to 212° F. and held at that temperature for 10 min. if all the benefit is to be obtained from the starch. It takes steady heat to burst the starch granules; and if cornstarch is used, holding the heat for 15 min. is recommended.

In the accompanying table are given recipes for finishing various types of thread. The formula for white thread should give good results; but if it is not heavy enough, addition of 3 lb. of cornstarch should be helpful. The formula for black thread will give a good bright finish and one that is not expensive; if the size breaks down, make it up with a little sal soda, but the finish is brighter without it. The formula for a gray or unbleached finish also is inexpensive, but gives good results.

All of the formulas given may be modified to suit conditions. Dextrin may be added to increase the gloss, glue to raise the strength of the thread, and glycerin or a small amount of sulphonated castor oil to give more flexibility. Use of a larger amount of cornstarch will increase the strength of the size, but will give a harsher finish.

The procedure recommended for making and cooking the size is to run cold water into cooker and bring up to 120° F.; mix the starch with cold water in pails and add; when the size begins to gelatinize, add the oil and waxes previously boiled up in a pail with water; raise the temperature to the boil in 10 min.; and continue boiling for another 10 min. If the size sheds at dressers, allow it to cook 10 min. longer. Many mills cook their size in an open barrel with live steam. This process is not to be recommended. A closed pressure cooker will give better results.

It has been mentioned that the formula should be as simple as possible. There are several good reasons for this. One is that there is less chance of the size mixer forgetting one of the ingredients—an occurrence which is by no means rare.

Formulas for finishing various types of thread

	White	Black	Unbleached
Water	50 gal.	50 gal.	50 gal.
Potato starch	12 lb.	20 lb.	20 lb.
Beeswax	7 oz.	½ lb.	3 lb.
Paraffin wax	7 oz.	3 lb.	.....
Coconut oil	7 oz.	1 lb.	.....
Sal soda	6 oz.	.....	6 oz.
Cornstarch	.....	.....	4 lb.
Mineral oil	.....	.....	.....

Painting

By Mark A. Golrick, Jr.
Dutchess Bleachery,
Wappingers Falls, N. Y.

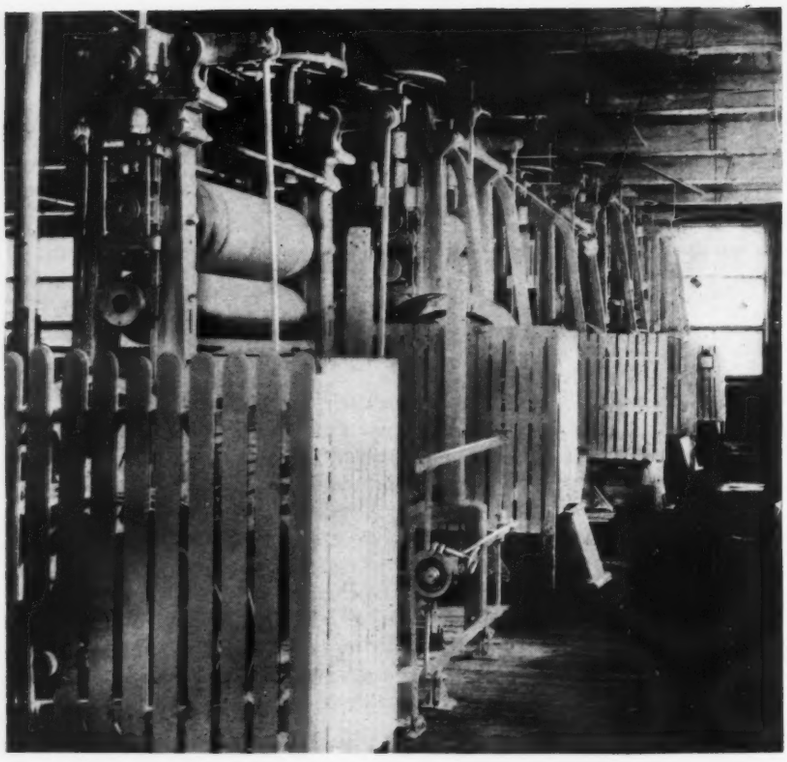


Fig. 1. Row of calenders and guards painted with aluminum paint

OF the several uncommon features which mark a painting job recently completed at Dutchess Bleachery, the type of paint used for certain parts of the work and the way in which the project was carried out are probably the most unusual. That is, extensive use was made of aluminum paint for painting equipment and interior woodwork, and the actual painting was performed by employees of the company who otherwise would have been idle.

It is recognized that an important part of plant maintenance is a systematic program of painting for both exterior and interior. The exterior paint on window frames, sash, doors, roof jets, etc., is subject to weathering and presents a neglected appearance if not painted at regular intervals. Such a condition is so obvious that interior painting is often neglected at the expense of outside appearances.

In certain departments at Dutchess Bleachery the interior is subject to considerable dust and lint; in other departments conditions range from humid to steamy atmospheres. The dust soon coats the walls and ceilings with a grime which can be removed only by scraping. The humidity and steam are responsible for the rapid deterioration of ceilings and roofs, unless the wood has been treated against decay or the surface is well protected by a coat of paint of sufficient thickness and surface to prevent the absorption of moisture by the planking and timbers.

The best protection for wood varies for the different applications; and in this plant a large percentage of the timbers and planking had been treated with creosote. Creosote in wood immediately bars the use of most of the white paints, which turn yellow almost as soon as applied. After many types had been tested for use on the creosoted wood, it was decided that aluminum paint gave the most satisfactory results. It happened that some seven years before these tests were initiated a small section of heavily creosoted planking had been coated with aluminum paint; and the appearance of this section corroborated the results of our investigation. The aluminum paint finally selected was a powder which can be mixed in different proportions with a special vehicle according to the particular application. This type give a brighter surface and better reflecting power than any of the others with which we experimented, and it has now been applied to all creosoted wood surfaces with gratifying results.

For brick walls and untreated planking, a standard white paint has been used on the interior and exterior of the plant. Due to the high humidities in some part of the interior, the same paint is used in both instances. This paint is a pure lead, linseed oil, turpentine and dryer paint, with no other ingredients.

Aid From "Sinking Fund"

For some time, however, actual painting did not progress very rapidly, as certain of the rooms could not be worked on while the machinery was operating. In some departments the cleaning and scraping would spoil cloth in process, while in others the ceiling temperature was excessive during productive periods. The slackening off of work which occurred in the finishing industry last

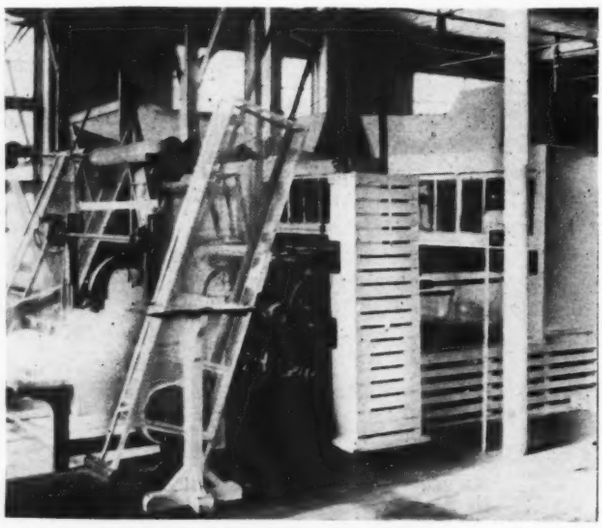


Fig. 2. Housing and guards on delivery end of hot tenter painted with aluminum paint

Mill Interior

RECENTLY COMPLETED JOB HAS SEVERAL UNUSUAL FEATURES

summer and the fact that we have what is known as an Employees' Sinking Fund enabled us to make better headway on the painting job.

The sinking fund is designed to insure regular employees against unemployment. It is administered under the following rules:

"In case the plant or any department of the plant is closed temporarily on account of business depression or other cause not within the control of the operatives,

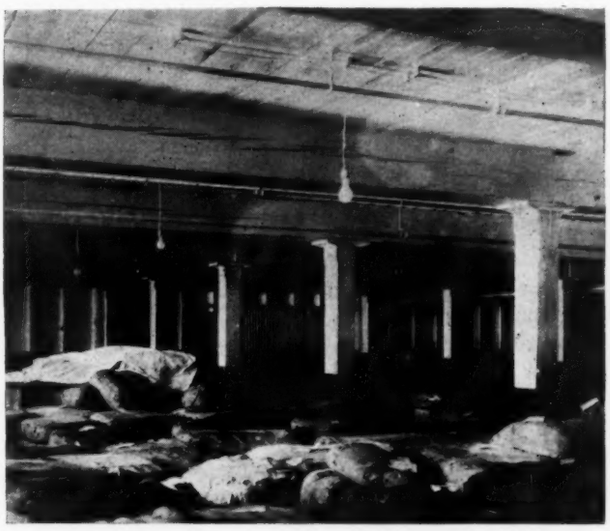


Fig. 3. Storage room for gray goods; very dark before ceiling was painted with aluminum paint

when the fund amounts to $50,000 or more, each operative on the regular payroll shall receive half pay for all time lost under 40 hr. a week, overtime not included. This amount of $50,000 is understood to bear a ratio to the payroll, and it will be in order to increase this amount in case of an appreciable increase in the payroll.

"In case of short time when the fund amounts to less than $50,000, each operative on the regular payroll shall receive half time for all time lost under 24 hr. per week, overtime not included, but in no case shall a person receive less than 16 hours' pay until fund is used up. This amount of $50,000 is understood to bear a ratio to the payroll and it will be in order to increase this amount in case of an appreciable increase in the payroll."

Assistance in Off-Peak Periods

This fund has been of great assistance to the employees during periods of off-peak operation on seasonal lines of goods when some departments have been curtailed, while others have been running full time. In such instances as this, the help received part pay, but the plant received no direct benefit. It was decided to utilize the short time plus the fund to push the painting program to completion. That is, when a department was shut down because of lack of work, the employees in that department were given the job of painting the walls, ceiling, etc., and certain pieces of the equipment; and they were paid from the sinking fund.

Climbers and Non-Climbers

The machine operators were not all capable of climbing on staging and, therefore, had to be divided into three groups. Those who were capable of climbing were given the ceilings and the higher parts of the walls to clean and paint. Those who were better painters than some of the others and could climb a little were given machines and the lower sections of the walls. Those who could not climb and were not adept at painting were used as supply men to carry paint and move staging. In general, the painting crews that had staging moved for them could paint twice the area that could be covered by crews moving their own staging.

It was found, however, that it was not always possible to have the staging moved, as some departments had too small a crew or the staging around machines could not be moved advantageously.

Photographs were taken as the work progressed. Fig. 1 shows a row of calenders and guards painted with aluminum paint. Fig. 2 shows the housing and guards on the delivery end of a hot tenter painted with aluminum paint.

Fig. 3 illustrates a gray-bales storage room; because of the low studding, this room was very dark until the ceiling was painted with aluminum paint.

The machine frames, such as calenders and water mangles, when first painted with aluminum paint, were the cause of much criticism by the operatives; but after they had cleaned the machines a few times, they looked upon the bright paint with great favor. It was discovered that very little dirt would show on the frame, but the machine could be cleaned so easily that a little attention at intervals reduced the total cleaning time.

Better Light Afforded

The better light in the departments plus cleaner machines tends to keep the cloth cleaner and assists inspection. In fact, the reduction in seconds, coupled with the reduction in machine maintenance costs, has more than offset the cost for paint.

The reason for this is that the painted machines show up mechanical defects in the early stages and prevent many of the more costly repairs. In addition, working in bright, clean, and well-painted departments has added to the better feeling and contentment of the employees.

Bold and Rough . . .

COTTON DRAPERIES DEPARTING FROM ERA OF FINE STRIPES

By W. L. Carmichael
Designer, Georgia School of Technology

IN line with the trend in practically all fabrics, the new cotton draperies are rough in texture and bold in pattern. Such a combination of factors opens a wide field for the enterprising designer, and many attractive patterns have been produced.

Texture now plays a more important part in cotton materials than ever before, with a decided popularity for roughness; and there seems to be no limit to the new and ingenious results which may be obtained. Many samples clearly show the influence of hand-woven materials, using coarse yarns and bold but simple weaves to secure the desired effect. Other samples of a rough, nubby nature use only the plain weave and depend wholly upon the use of novelty yarns to give a pleasing texture. Although not all of the new draperies are so heavy and rough, the interest in texture is nevertheless represented by the use of diagonals, twills, checks, and other weaves of a prominent character.

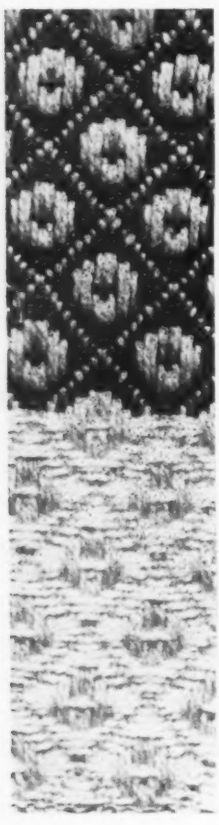
The recent widespread popularity of check patterns is very apparent in these fabrics, and they make a welcome addition to a class of goods which for so long depended solely upon stripes for patterning. The checks range in size from very small, subdued effects to large and striking tartan plaids. Stripes are still popular but even these are bolder and wider-spaced; and a decidedly new note is the use of wide horizontal stripes.

The range of colors being used is practically without limit, but there is a noticeable increase in the richer and darker tones, and the use of natural-colored cotton yarns is very smart.

At *A* in Fig. 1 is a design suitable for a drapery of the homespun type. The yarns for both warp and filling may be made by twisting together two ends of 8-hank roving. A construction of about 30 ends and 24 picks per inch would be correct. At *B* is shown a pointed drawing-in draft on ten harnesses, and *C* shows the chain draft. This would make a good pattern using a natural-colored warp and a filling of dark blue, dark green, or rust. An effective stripe pattern could be made from the same design by using a warp pattern of 50 ends natural alternating with 50 ends blue, green, or rust with natural filling. Warp pattern could be varied to either of these:

Natural	50	20	Natural	50	50
Plum	50		Blue	30	
Brown		30	Yellow		20

At *A* in Fig. 2 is a check pattern made by combining the four-end twill in warp and filling effects. The checks are illustrated as occupying sixteen ends and picks warp face and sixteen ends and picks filling face; but of course this could be altered in any desired manner, and the color lay-out given below would require squares 100x 100, alternating warp and filling face. The same yarns



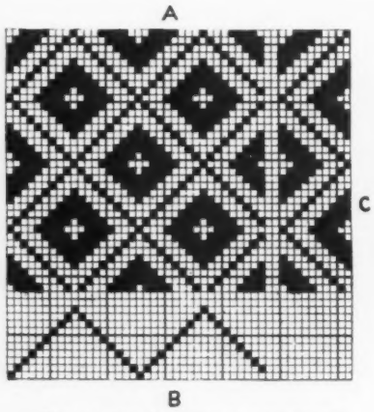


Fig. 1. For drapery of homespun type

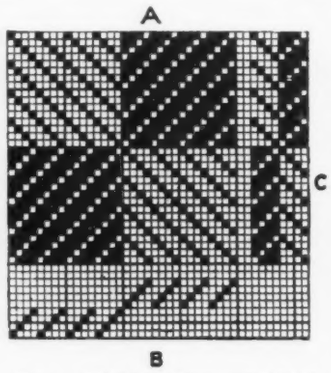


Fig. 2. Check pattern combining warp and filling effects

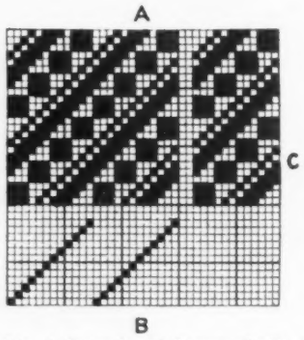


Fig. 3. Prominent diagonal effect

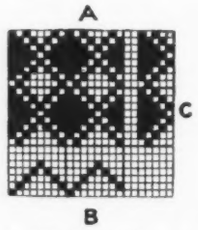
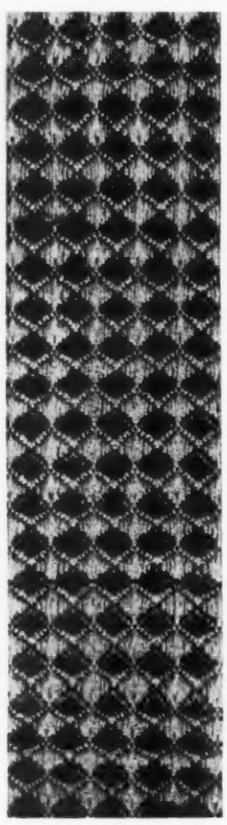


Fig. 4. Honeycomb or waffle weave



could be used as in the previous example, but to prevent distortion of the pattern a square construction of about 26x26 would be better. This weave would be effective in developing a bold plaid, and a variety of colors could be used. A good color layout would be as follows:

Dark Green	12	8	2						2	8	12			44
Brown		2	4	8	2			2	8	4	2			32
Yellow				2	4	2	2	4	2					16
Natural					2	4	2							8

In the filling pattern substitute light green for brown and gray for yellow. This, of course, would require a box loom, but the pattern is arranged so as not to skip any boxes. Drawing-in draft is at *B;* chain, at *C*.

At *A* in Fig. 3 is a design which will give a prominent diagonal stripe and would be better if made from finer yarns than the other two examples. A suitable size would be 22/2, and with such yarns the construction should be closer—about 40x36 or 40x40 for a good cloth. At *B* is shown a straight draw on twelve harnesses, and *C* is the chain draft. This weave would be attractive using a natural-colored warp and a dark-colored filling.

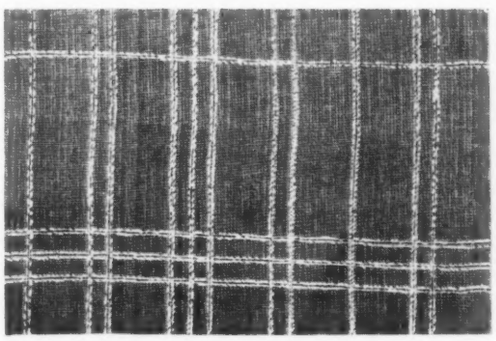
At *A* in Fig. 4 is a familiar honeycomb weave, which because of its interesting cellular texture, is being frequently used. It is referred to as a "waffle weave." For this design either coarse or fine yarns might be used.

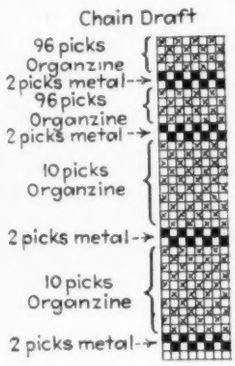
None of these designs is difficult to weave, and the cloths are novel and attractive. A feature of all four is that they are reversible, which is quite desirable.

Metals Gleam Forth

By Harry L. Robertshaw

METALLIC STRIPES AND CHECKS HOLD PROMISE FOR COMING SEASONS





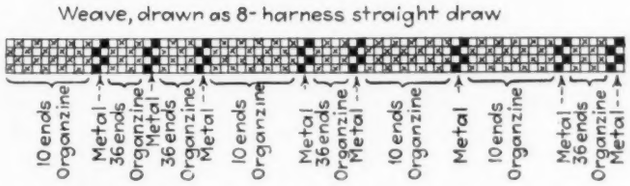


Fig. 1. Metal-check silk voile for blouses and trimmings, 42 in., 124 x 106 2-thread 13/15 organzine and metal yarn in both warp and filling, weave and chain draft as shown.

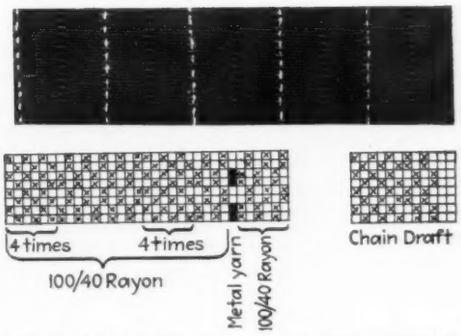


Fig. 2. Metal-stripe rayon-crepe dress material; 42½ in.; 140 x 56; warp, 100/40 rayon and a metal yarn; filling, 100/40 rayon crepe; weave and chain draft as shown.

Fig. 3 Metal-stripe silk-crepe dress with all-over metal effect; 44 in.; 104 (208 average) x 52; warp, 1/16 silk, 2 ends per heddle; filling, 6-thread 1/16 silk crepe, 2 right and 2 left; weave, plain as shown.

METAL yarns used in decorating woven fabrics for dress material give promise of being a very select and sightly style for dresses, blouses, and sport wear to be worn in the fall of 1934 and the spring of 1935. In the past, metal yarns have been too brittle and harsh to be used for dress material, and therefore they have been employed mostly for trimming on collars and cuffs or on hats. Improved methods of manufacturing metal yarns, however, have made them more desirable for woven fabrics. They are more pliable and hang better, and, due to their being rounder, can be washed without fear of cutting the yarns next to them.

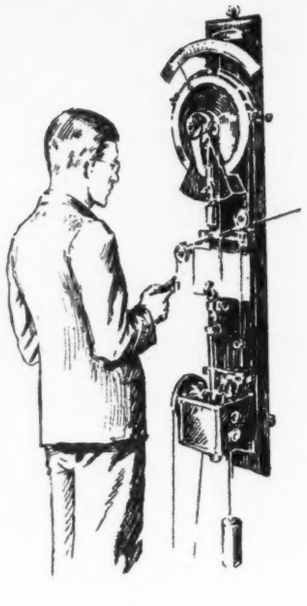
Metal yarns can be woven in either the warp or filling with equal success; and stripes, checks, or filling ribs are effective. The size of the yarn can be varied depending upon the type fabric in which it is to be used. In an all-silk fabric, the core of the yarn is generally made of a two-ply organzine silk, and the metal is wound around the core, forming a thread which appears to be all metal. In a rayon fabric the core is made with a good two-ply cotton with the metal wound around it. The reason for using this type of core is the necessity for a strong yarn and suppleness. The size of the cotton yarn in the latter case depends upon the size of the core yarn used and can be varied to suit the fabric being made.

In preparing metal yarns for weaving in the warp, great care must be taken to get an even beam, as any loose ends will show up badly on the face of the cloth and cause bad weaving. On account of the low number of ends usually used, it is much better to make the warp with papers every 30 yd. to insure a perfect beam.

The filling yarn should be put on the quills as tight as possible, and the shuttle must be packed with fur to avoid sloughing off, as the nature of the metal yarn makes it slippery and hard to hold on a quill. Great care must be taken to stop this sloughing off, as the yarn is very expensive and the amount of waste must be kept as low as possible.

Future of Testing

HAMPERED BY SPECIFICATIONS CALLING FOR INCLINATION BALANCE



THE familiar inclination-balance machines for testing the tensile strength and elongation of textile materials have appeared to be such permanent fixtures in the mill laboratories that we have seldom questioned their right to be there. Occasionally we have been reminded of a fallacy in their design, but they have proved to be such an advance over previous equipment and their accuracy has been developed to such a high point (within the limits permitted by the principle on which they operate), that we have been content to let them become and remain the universally accepted equipment.

The result of our complacency has been that there have accumulated numerous standard specifications of one sort or another based on the results of testing by this insufficiently accurate means. Committee D-13, the textile committee of the American Society for Testing Materials, for example, specifies that "textile testing machines [of 'tension' character] shall be of the inclination-balance or pendulum type." Such standards nullify attempts to advance further the accuracy and reliability of testing. The longer we postpone the next step forward, the greater will be the number of these standards and the greater will be the investment in machines of the present type—two great obstacles to further advance.

Specifications for textile materials are growing constantly more rigid, and manufacturing processes are being refined to give greater accuracy. It is obvious that the way must be cleared to permit our mills to meet the new specifications and to know that they are meeting them. Progress in testing must keep pace with progress in other technology.

The fallacy in the design of present strength-and-elongation testers lies in the fact that the machines do not—and cannot as at present designed—apply their pulling load at a constant rate of speed. True, the lower jaw moves downward at a constant velocity, but the speed of the pendulum during any given unit of time depends upon two things: (1) the position of the pendulum on its arc during that period and (2) the amount the sample of yarn or fabric permits itself to be stretched. The higher the pendulum is lifted from vertical, the more rapidly it moves; and the more or less rapidly the sample chooses to stretch, the slower or faster the pendulum. These variations affect the accuracy of the test, because, as has long been known, it requires more load to rupture a specimen rapidly than it does to rupture it slowly. The latter fact has been given recognition to some extent by the standardization of the rate of speed of the lower jaw—at 12 in. per minute.

The variation due to the first of these causes has been minimized by reducing as much as possible the amount which the pendulum is obliged to move in order to indicate the breaking strength. However, there is still some error, and tests made on a given material on a machine of one capacity are not properly comparable to tests made on the same material on a machine of different capacity, since the arcs to be described by the respective pendulums in indicating supposedly the same strength are of different lengths.

The second variation—that due to the stretch of the material under test—is the greater problem. Not only does a given material stretch at an irregular rate, but different materials are capable of different total stretches. Thus, a weak sample of low elongation might show up to greater advantage in the test than a somewhat stronger sample capable of longer stretch, because the stretching of the latter would prolong the time required to reach the break.

Machines have been devised which do give a constant rate of loading or of applying the force. The one which Prof. George B. Haven, of Massachusetts Institute of Technology, said in 1923 was "destined to become the permanent form of apparatus for testing textiles" is the inclinable-plane type. In this a small track carrying a ball-bearing carriage attached to the specimen under test is tilted gradually. The tendency of the carriage to roll down the track places a load on the specimen. The inclination of the track automatically indicates in convenient terms the amount of load; and the distance the carriage travels indicates the extensibility of the specimen. Not only does this machine apply the load uniformly, but no ratchets or other mechanism are needed to hold the indicator in position at the break and the graphic charts produced are accurate and easily interpreted. This machine has already been adopted to some extent by the silk trade and has been found particularly suitable for producing fatigue curves, as explained by Warren P. Seem in the Oct. 11, 1930, issue of TEXTILE WORLD, page 28.

Other machines have been developed which apply a uniform load by permitting shot, sand, or water to pour through an orifice of definite dimensions into a receptacle suspended from the lower jaw, thus applying a constantly increasing dead weight. In these machines the upper jaw is rigid.

The first step in opening the way to progress in testing is to broaden present testing specifications to permit the use of improved types of machines. The first shot in this direction has been fired by David C. Scott, of Henry L. Scott Co., Providence, R. I., in his recent proposal to Committee D-13 (TEXTILE WORLD, April, page 105) that its present specifications for testing machines be withdrawn from standard.

It is to be hoped that the industry at large will lend its support to this important movement.

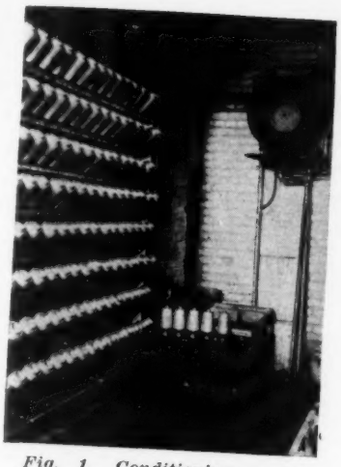


Fig. 1. Conditioning room equipped with humidifier

Pin Stitches . . .

INADEQUATE CONDITIONING MAY CAUSE THIS FULL-FASHIONED DEFECT

By Paul H. Bubeck

Superintendent, Norristown Plant
Ajax Hosiery Mills

◆ *In our March issue Mr. Bubeck discussed mal-adjustment of the knitting machine, one of the two principal causes of pin stitches. He now takes up the rôle of silk conditioning in preventing this fault.*

WITHOUT doubt, conditioning of silk has a great deal to do with the formation of the stitch. Regardless of the type of building in which the knitting equipment is housed, there is always a humidification problem. Modern mills are constructed with an understanding that there must be some allowance made for maintenance of the proper temperature and humidity. However, as the majority of full-fashioned machines are housed in buildings where these factors have not been taken into consideration, we must decide what to do for the silk to help it through the plant that does not have the proper moisture content in the atmosphere.

A conditioning room equipped with a humidifier is shown in Fig. 1. This apparatus has a return suction duct leading from it and extending to all corners of the room. The duct is provided with holes so that the humidifier can draw the excess moisture from the floor zone and redistribute it. The silk bobbin racks illustrated continue to the two sides of the room not shown in the photograph.

There are a number of moistening devices made with which all knitters are familiar. For example there are humidors, water heaters, felt boxes, etc. The usual method—and, as far as we can ascertain, the most effective—is to have the silk travel from the rear through porcelain eyelets and then pass between two layers of felt. The bottom felt hangs down in the water, and the top felt presses on the silk as it passes between the layers and causes it to absorb the moisture. A third felt, kept high above water, removes the excess moisture; and the silk then passes through another porcelain eyelet and on to the tension rings. Most automatic devices now have a trough filled from 5-gal. jugs at the end of the machine or from pressure water lines brought direct to the machine. With the pressure lines an automatic float system is employed to keep an even water level and to prevent sections from running dry and thus causing distortion of the stitch. The latter system is very suitable unless a special softening solution is required. When a softener is used, it must be handled in a different manner. We find that the automatic pressure system with the automatic float shown in Fig. 2 is foolproof, and we have never had a stocking run dry since this system was installed.

It is necessary for the knitter to cooperate closely with the throwster in order to have the silk soaked in a way that is uniform and that can be depended upon to operate in a certain manner under certain conditions. The throwster must be impressed that he is to keep the silk going through in the same consistent way, lot after lot, or the knitting problems are going to be difficult. It is necessary to experiment a great deal before one gets the proper solution. Then again, the throwster must be particularly careful of the nature of the silk, as to a great extent this governs the final result.

All machine adjusting and fixing will go for nothing if the silk is not properly conditioned. Soft-natured silk and soft soakings by the throwster will undoubtedly cause pin stitches, regardless of what adjustment is made on the machine. If a silk is made too soft, a certain amount of degumming will occur; this will make the needles sticky; and the sticky needles, in turn, will make a distortion.

Soft-Natured Silk

Another point is that soft silk will have a tendency to be somewhat more pliable, and the least misalignment or maladjustment of the machine will cause an exaggeration of the trouble and result in a distorted loop.

Hard soaking on the other hand, will produce sleaze. This is due to the fact that the silk is in such a wiry condition that the distortion is more irregular and shows up as a sleazy etched fabric, rather than a symmetrical distorted loop formation.

The fundamental difference between pin stitches and sleaze is that the distortion is different. Pin stitches are a series of large and small loops, imperfect compared to the rest, but consistently unbalanced so that a design or lace-like pattern is made in symmetrical form. Sleaze, on the contrary, is more of an irregular individual loop distortion, forming no definite shape whatsoever, and in its irregularity making an uneven etched design rather than a large and small loop formation.

With properly conditioned silk and correctly adjusted knitting machines, trouble from pin stitches is reduced to a minimum.

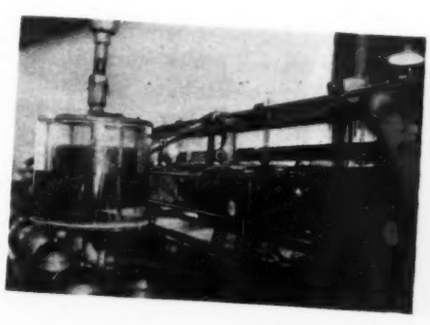


Fig. 2. Automatic float controls water supply for moistening system

GRAY CALENDERING AND EMBOSSING IN

Processing Rayon Crepes

By A. J. Hall

ALTHOUGH the finished appearance and handle of a rayon crepe fabric is largely dependent on the manner in which the creping process is carried out, the effect can be influenced appreciably by the pre-treatment of the goods. Thus, a fabric which under normal conditions of creping takes a coarse pebble appearance, can be so treated that during creping it will acquire a smooth and fine crepe character. When a crepe fabric is immersed in a hot solution of soap, caustic, etc., the yarns tend to untwist or snarl, with an accompanying shrinkage in length. Because of this fact, pre-treatments designed to modify the resulting crepe appearance of the fabric must in some way modify the untwisting tendency of these yarns. In this article we shall consider some of the pre-treatments which have been found useful in processing fabrics with an acetate warp and a crepe-twist, viscose filling.

One pre-treatment consists of calendering the fabric in its gray condition. It is found that with most crepe fabrics a simple calendering has only a slight effect. If, however, the fabric is steamed as it enters the nip of the calender—and especially if the calender is heated—the crepe yarns are definitely modified.

The type of calender ordinarily employed for treating crepe fabrics is one having an upper, steam-heated steel bowl running against a lower cotton or paper bowl. The amount of pressure to be used depends on the structure of the fabric. With a viscose-acetate rayon fabric, quite high pressures may be employed without risk of damage. On the contrary, with a cotton-rayon fabric, the cotton yarns are liable (on account of their greater hardness) to cut the rayon if the pressure is increased above a safe maximum. Only by experiment and experience can this pressure limit be determined. In any case, however, the degree of wetness of the fabric influences its susceptibility to cutting.

The fine, smooth, crepe appearance is enhanced if the fabric before calendering is run through a conditioning machine or is passed over a spray damper and then batched up on a roller and allowed to lie overnight. The conditioned fabric is then hot calendered as described above on a calender provided with a steaming device to further dampen the goods as they enter the nip.

In addition to modifying the crepe appearance, the pre-calendering treatment can be regarded as a means for removing certain faults which are liable to occur in crepe fabrics. Under peculiar conditions, connected either with the construction of the fabric or the high rate of creping, it is found that the creped fabric "grins." This fault is generally found when the fabric contains very highly twisted yarns that crepe quickly. The remedy for this fault consists of calendering the fabric heavily before creping. This treatment renders the fabric more compact and reduces the rate of creping.

It is well known that creases in the gray goods can be permanently set by the creping process. A pre-calendering serves to remove the original creases and is often employed for this purpose. Another method consists of passing the fabric over ordinary drying cylinders. The moisture normally present in the fabric is sufficient to give a reasonable amount of plasticity to the material while it is on the hot cylinders, and the creases are permanently removed. As a matter of fact, the writer believes that the can drying of all fabrics before creping is worthwhile as a precautionary measure.

Special embossing calenders are now available which enable a gray crepe fabric to be embossed to such a degree that the embossings obscure the indentations which are produced in the normal creping process. In this way it is possible to modify considerably the crepe which is ultimately produced.

Details of Embossing Practice

The following discussion by a well-known American finisher supplements Mr. Hall's comments on the gray embossing of viscose-acetate crepes:

Recently the Throwsters Research Association has called attention to the pebble irregularities present in acetate-warp, viscose-filling canton crepes, and has recommended the gray embossing of these fabrics to bring out and set the pebble and to overcome the irregularities. Today probably the majority of finishers are embossing at least part of these fabrics. Some authorities believe, however, that if the yarn is properly thrown, embossing is of no advantage so far as creping is concerned, although it will serve to break up any creases which may be present in the gray goods. On the other hand, the advocates of the process contend that when the embossed fabric is subjected to creping, the twist of the yarn is released in a manner corresponding to the pattern which remains permanently. The effect is similar to that produced by hard wrinkles, except that a pattern is used to create a definite pebble. They state, moreover, that the yarns are thermoplastic and, when embossed with a hot roll, are permanently deformed in such a way as to prevent shifting of either warp or filling yarns or to minimize the effect of yarns which have shifted in the gray.

Gray embossing originated in Europe and was practiced abroad for about two years prior to its introduction in this country. The operation must be conducted with care if a uniform pebble is to be obtained. The first type of equipment to be used was a two-bowl machine with a light frame. This was fitted with a paper bowl and a steel embossing roll deeply cut with an overall stipple effect.

Some difficulty was reported from vibration and chattering, and three-bowl calenders of slightly heavier construction have now been made available. Contrary to general practice in the operation of this type of calender, in order to gain time for permanent deformation of the acetate yarn, it is proposed to pass the cloth around the heated steel roll, going first through the bottom nip and out through the top. It is necessary to guard against improperly crowned bowls if irregularities, such as lightly embossed centers and heavily embossed selvages, are to be avoided.

While an overall stipple effect is most common, lines, checks, and floral patterns with stipple background have been experimented with.

THROWING AND GRADING PLAY LARGER PART IN

Knitting Show

NOTEWORTHY at the thirtieth annual Knitting Arts Exhibition, held at the Commercial Museum, Philadelphia, April 23 to 27, was the emphasis placed on raw silk and throwing. The interest in these subjects among hosiery men has been growing steadily as the trend toward finer gages, lower multiple-thread counts, and more varied colors has radically increased the problem of securing satisfactory yarns and has led to the introduction of the three-carrier full-fashioned knitting. Outstanding evidence of the trend was the elaborate demonstration of the "9-meter" composite test for raw silk by the Silk Committee of the National Association of Hosiery Manufacturers, exhibits of improved throwing machines, new yarn-conditioning equipment, announcements of new chemical compounds for making silk more hygroscopic, and displays by throwsters of yarns so treated for three-carrier knitting.

The Silk Committee's exhibit consisted of a continuous demonstration of the reeling of seriplane panels, 9-meter skeins, and 2,250-meter skeins; seriplane inspection; automatic skein weighing and recording; gage testing; operation of the inclined-plane serigraph; and hosiery inspection by means of the ingenious clear-to-wearing grading cabinet. The composite test and the grading cabinet have been thoroughly explained in TEXTILE WORLD by Warren P. Seem (December, page 68, and April, page 84).

More new developments than usual were shown in half-hose knitting machinery. Included was the shog-wrap, which is a means for stepping the finger cylinder backward or forward in relation to the revolutions of the needle cylinder on an individual-needle-wrap machine, this giving greatly extended patterning capacity. A panel-wrapping attachment has now been successfully applied to the automatic half-hose machine which knits the rib top and the body of the hose continuously. To this type of machine has also been applied for the first time a 25-step needle-reverse-plating mechanism. Imitation-wrap clocks can now be produced on the ribbed-instep machine. Two-feed sinker-reverse-plating machines and two-feed needle-reverse-plating machines were both shown equipped for plating on both feeds, giving not only increased production but also greater design capacity. An English broad-rib knitter was shown in a finer gage than hitherto—240 needles to a 3½-in. cylinder.

A recently developed short-move main ratchet for half-hose and children's-hose machines makes it possible to tip the heels and toes and make a number of additional yarn changes without special devices. Split-foot machines now have six levers to permit knitting "white-foot" hosiery with all regular splices and an extra high splice in yarn of the same color as the body, while making a triple toe cap of white. An electric stop motion has been applied to rib-to-toe machines detecting loading of needles and broken latches. Patterns containing large figures are produced on a 36-gage 48-step jacquard reverse-plating machine with double feed.

Rapid transferring of rib tops was demonstrated on an extensive line of hosiery machines equipped with three new devices for the purpose. One of these is a sleeve cylinder which is made to raise the sinkers even with the tops of the needles through a slight pressure exerted on a pedal. Another is called the "automatic transfer device" and consists of mechanism which lowers the transfer ring, stops any pressing off, enters the cam block to ride the yarn on the tops of the sinkers, and starts the knitting. The third device is an automatic clamp weight or "mechanical hand" which rises within the cylinder to seize the top, pull it onto the needles,

Views at Philadelphia Show where more exhibits, a larger attendance and greater cheerfulness were noted than in recent years

and weight the stocking, causing the latter to drop off when finished (at this time the carrier ring lifts automatically).

Of considerable interest in new equipment for knitting women's circular hosiery was the improved square - heel attachment, providing additional fabric in the heel, giving greater strength to the gore line, and extending the heavy fabric under the heel to receive the heaviest wear. The original square heel for circular hose appeared a year ago.

The single-head full-fashioned hosiery machine exhibited for the first time at last year's show has been equipped with a new automatic rack back which, at the completion of a stocking, returns the transfer points, yarn carriers, and carrier stops to starting position and lays the first new course on the needles. The single-head machine was equipped also with three-carrier mechanism and a "semi-automatic welt turner," the latter consisting of motivated guides for applying the welt hooks to their proper needles. Three-carrier or "ringless" stockings were displayed by various machine builders, made in some cases on single-unit or foot-and-leg machines. Some three-carrier single-unit stockings were shown in 60 gage, produced by an American knitting mill.

At one of the Philadelphia hotels a motion picture which was exhibited to a limited number of hosiery men illustrated an ingenious and completely automatic welt turner, and also a unique device for maintaining constant alignment of needles and points automatically. Displayed at the show were leg blanks and finished hosiery made on a new machine which knits all of the stocking but the heel tabs, these being knitted on a small machine after the remainder of the stocking has been completed. Two new types of moistening equipment exhibited for full-fashioned machines permit greater flexibility of adjustment and increase the uniformity of conditioning.

Among the outerwear knitters was seen a new 12-step spring-needle presser machine of the individually-operated-needle type in which the order of tucking can be changed quickly by moving a series of small levers at each feed and the floating can be readily changed by turning small knobs controlling the long- and short-butt needle cams. This machine was said to cut down the task of changing patterns on, say, fifteen machines from two or three days to a few hours. It gives vertical and horizontal designs. A spring-needle machine with presser wheels on the inside of the cylinder was publicly exhibited for the first time. On a bathing-suit machine the driving dogs have been eliminated in favor of a dial driven independently, a split pinion taking care of wear and backlash. New to the Philadelphia show were a fine (22 needles per inch) latch-needle scarf machine with pattern wheels, and a 12-cut latch-needle ribber. Refinements were shown in links-and-links machines, both in the flat type and in the new circular type. Samples illustrated the direct knitting of 2x2 cuffs on jersey sweater goods by means of a new attachment and the versatile application of varied colors to IxI collarettes.

In underwear machinery were exhibited an eight-feed rib-eyelet machine equipped for the first time with two shaping attachments for making shaped girdles and rubber fabrics of various sorts, and a snuggies machine with independently driven dial and new take-up for uniform winding. Pattern fabrics produced by the recent application of cut pressers to spring-needle ribbers were displayed.

Included in accessory equipment for knitting mills was one of the largest machines at the show—a shuttle-embroidery machine for producing clocks on hosiery. Although not new, it had not been publicly exhibited before.

The new throwing equipment consisted of a complete line of oilless-bearing machines, an adjustable-speed skein winder equipped with oilless and ball bearings throughout; a spindleless skein winder designed for high speed and reduced doffing time; a winder and two high-speed twisters designed for greater convenience of operator and fixer; an oilless-bearing redraw frame with twister-type take-up and automatic arrangement for lifting bobbin out of contact when thread breaks; and an adjustable-speed redraw frame demonstrated running at a receiving-bobbin speed of 1,800 r.p.m. and equipped with oilless and ball bearings throughout.

New layout of exhibits afforded more aisle space and gave elbow room for visitors. A gay fountain marked center of the hall

Less winding equipment than usual was in evidence, but samples of new packages were shown. These included a silk, rayon, or sewing-thread package cross-wound at high speed (2,000 r.p.m.) on a new single-head holder made entirely of paper and known as the "bobbin spool." Double-head bobbins of laminated Bakelite construction in the heads had the individual laminations in various colors for identification. Others were shown with smooth vulcanized fiber heads, and some with a paper-base Bakelite on the inside for smoothness and fabric-base Bakelite on the outside for strength. A new skein tier makes two ties in one operation, preparing the skeins for soaking and eliminating the danger of catching the silk.

A new conditioning machine for cones, tubes, and bottle bobbins consists of three small extractors on a table, each containing a basket shaped to hold one yarn package snugly. The solution, in an automatically measured quantity, is fed to the center of the package, whence it is spread to the exterior of the package by centrifugal force. One basket is loaded while the others are running. Minor improvements were shown in other conditioning machines, one cabinet type having been rearranged with the heated-water reservoir on top to prevent condensation on the ceiling.

The continued progress which sewing-machine manufacturers are making toward higher operating speeds without impairment of quality, which was noted at last year's show, was further evidenced at the present exhibition. This was true in the case of several types of shellstitch, seaming, overseaming, and blind-stitch hemming machines, and a number of buttonhole and button-sewing machines devised specifically for use in the knitting industry. Perhaps the most radical innovation in this field, however, is in the method of driving, one exhibitor displaying a new electric transmitter which eliminates the customary drive shaft, pulleys and guards, reduces the electric power consumption, and eliminates complete shutdown of a whole section of machines from motor failure.

Although a number of refinements have been made since last year's show in bleaching and dyeing equipment, the more outstanding developments were in finishing machinery for hosiery and other types of knit goods. Of particular interest, for example, were two new pieces of equipment for processing tubular fabrics. One of these, an upright finisher, permits continuous processing of tubular fabrics at speeds ranging from 7 to 30 yd. per min. The cloth, previously loaded into containers, passes up over a drum-shaped spreader from which live steam is applied. It then passes over a flat spreader where it is contacted by spreader feeds which can be adjusted to travel slower than the cloth to hold the edges back, or faster to feed them ahead, and thus to straighten distorted fabric. The cloth is then calendered over steam-heated rolls and batched up against a water-cooled roll. If desired, this type of machine can be fitted with a hot-air unit for drying the goods or with a blower for cooling them after they have been calendered. Also exhibited for the first time was a more elaborate machine which extracts, processes, dries, conditions, and folds tubular fabrics in one continuous operation. This machine is used for delustering rayon; imparting luster to cotton; applying a light sizing to cotton balbriggans to avoid curling during the cutting operation; and for imparting water-repellent and other finishes to cotton, rayon, and wool fabrics. The rotary machine for finishing sweaters, bathing suits, underwear, scarfs, mittens, etc., which was exhibited in February at the Outerwear Show in New York, was again demonstrated. This machine is used like an ordinary mangle, but is employed for steaming the goods, as well as applying heat and pressure.

One of the most recent innovations in hosiery finishing equipment is a reconditioning machine designed to remove chafe marks from full-fashioned hosiery, and having a capacity of 70 doz. stockings in 8 hr. with one operator. With this machine, the stocking is fed between felt blankets, where it is treated with a mixture of white oil and carbon tetrachloride or a similar compound. The stocking then passes continuously over and under a set of four elliptically shaped felt rolls, which rub off or flatten the fibrils which give the hose the chafed appearance. The manufacturer of a well-known automatic hosiery boarding machine has added to this

equipment a new conditioning unit which attracted no little attention. The purpose of this device, which subjects the goods entering the dryer to the action of steam, is to prevent drying marks and crease marks, to permit rayon hosiery to be extracted much drier than is the usual practice at present, and to allow ingrain hosiery to be boarded without a pre-moistening treatment. Minor improvements have been made in the semi-automatic hosiery boarding machine displayed for the first time in 1933, and a new model has now been made available with electrically heated forms. Also was demonstrated a new electric drying form on which the final patents were granted in January. With this form, any one of three heats can be obtained without the use of rheostats, thus giving a 40% saving in power consumption over older models. The inspection form with attachments which eliminate turning of the form, which was brought out a little over a year ago, has now been equipped with a device for automatically measuring the size of the feet and the length of the legs during the inspecting operation. Another new expanding hosiery-inspecting form of laminated Bakelite construction is so designed as to turn the stocking as it is applied to the form, the stocking being first inserted through a hole in the side of the form, pulled out another hole in the small end, and so slipped over the form with the reverse side exposed.

The increasing interest of textile men in proper lubrication was reflected in a number of exhibits which featured oils and greases specially developed for use on knitting machinery and auxiliary equipment. Among the most recent developments noted in power transmission equipment were included several models of an improved gear motor and a new type of non-skid leather spindle belt which has a ribbed surface designed to grip the spindle firmly and to eliminate vibration and uneven twist. Growing use of corrosion-resisting materials in the fabrication of textile machinery was evident, as, for example, in a new extractor recently made available with a Monel metal curb. Probably the most striking innovation in textile-mill illumination was a new unit which combines incandescent and mercury-vapor lighting. The illumination afforded by this unit closely approximates daylight conditions.

In conjunction with an exhibit illustrating the latest styles of printing, lithographing, labeling, and packaging of hosiery and other knit goods, was shown a new indelible transfer which cannot be removed by washing or treatment with solvents or other detergents. This is expected to be of particular value in labeling knit goods and other fabrics in such a way that the quality will be made known to the consumer. In the same exhibit was featured a wide variety of decorative transfers which are employed for imparting designs on a wide range of materials, including men's half hose, children's wear, neckties, etc. Also shown was an air-operated transfer stamper capable of exerting pressures of 15 to 300 lb., and equipped with an electric heating unit. The new hand-operated machine for printing labels and stickers which was shown at the Outerwear Show was again exhibited in Philadelphia. Particularly designed for use in small mills, this machine produces 150 stickers per minute. With it labels can be produced in a continuous roll with or without perforations, or as individual stickers.

In addition to the apparatus demonstrated by the Silk Committee, individual exhibitors displayed a number of other new testing instruments for various purposes. One piece of apparatus which evoked considerable interest was a simplified textile projector for inspecting yarns and fabric under a comparatively high degree of magnification. This device, which projects the magnified image of the specimen under observation onto an 8x10-in. self-contained screen, can be employed without change for making photomicrographs. Other new testing devices include a precision test twister so devised as to give direct readings and equipped with an automatic tension device which eliminates variations in test results obtained by different operators due to variations in tension applied to the yarn when it is placed in the tester; a machine for determining the wearing qualities of hosiery; and a device for determining the durability of fabrics which are exposed to flexing.

Several exhibitors of textile chemicals featured recently developed formulas and materials for use in soaking silk which is to be employed in the manufacture of direct-running yarns. In addition were shown a number of new degumming agents and finishing materials for hosiery and other types of knit goods. One compound which was brought out for use in the one-bath method for degumming and dyeing silk hosiery contains properly buffered peptizing salts in combination with a highly sulphonated oil as a conditioning agent. Other new chemicals shown this year include a yarn conditioner which is added to the last box of the mercerizing machine to give a self-lubricated knitting yarn; a new splash-proofing material which imparts a smooth, soapstony finish to hosiery, a chemical which prevents the formation of and redissolves lime and other metallic soaps, and which is being used as an assistant in degumming, dyeing, and bleaching, and also in the softening of hard water.

As has been the case in previous years, a large number of exhibits were devoted to the display of yarns and knitted fabrics made therefrom. Several exhibits featured the direct knitting yarns previously mentioned; in others were displayed novelty yarns of various types; one manufacturer showed a 400/1 cotton yarn.

This year a welcome innovation was introduced in the layout of the exhibition. The partition usually placed at the south side of the hall was not erected and the exhibits were spread over the entire floor area, leaving sufficient room for wide center aisles with an attractive fountain and floral display.

ADVERTISING PAGES REMOVED

Power-Consumption Tests

A GUIDE TO MACHINE ADJUSTMENT AND MAINTENANCE

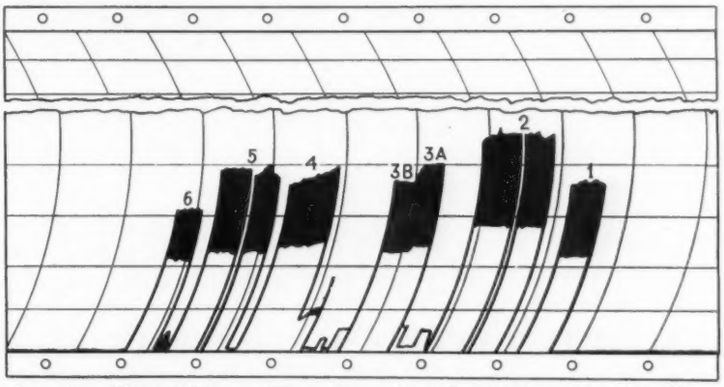


Fig. 1. Loom records made with portable graphic wattmeter. (1) Loom in good mechanical adjustment driven by ¾-hp. motor, power load 0.56 kw.; (2) Loom of same size driven by ¾-hp. motor, power load 0.72 kw. (16% higher than No. 1) found to be due to improper meshing of gears; (3A) Loom No. 2 with gears properly meshed; (3B) same loom after cleaning out stopped oil holes and lubricating bearings; (4) Loom of same size started and minor adjustments made, note decrease in load as adjustments were made; (5) Loom in good operating condition driven by ¾-hp. motor, power load 0.62 kw.; (6) Loom No. 5 with one friction bearing replaced by a ball-thrust bearing—power load reduced to 0.54 kw.

MORE efficient machine operation and lower power consumption have been obtained in several textile mills recently as a result of the proper use of modern instruments for measuring the power required to operate individual machines. Mill electricians and master mechanics report the discovery of great variations in the power consumed by machines of similar type and age operating on the same constructions of yarn or fabric. In recent months there has developed an increasing recognition of the value of power-consumption studies, particularly when applied to individual machines at regular intervals, and this trend has been stimulated by the introduction of instruments designed primarily for this type of testing.

Power, light, and labor are all more or less intangible items. The manufacturer can buy coal by the ton, cotton by the pound, or water by the gallon, and always see what is being delivered. But human interest, skill, and effort, in the form of labor, are not measured in any of these familiar units. If a water faucet leaks, the defect is apparent; but electricity is invisible, and its waste is usually undetectable by any one of the five senses. If a shaft gets out of line, or the foundations of a machine settle, thereby increasing the friction load, the driving motor quietly draws more current and keeps things turning until something burns out or breaks.

Every type of machine, when in normal operating condition, has a characteristic cycle of performance which can be obtained from a record of the power supplied to the motor driving it. If the machine is not properly operated, or if it happens to get out of condition, the graphic meter record discloses the fact. The record reproduced in Fig. 1, showing data obtained from a series of loom tests, is an example of what a mill can discover concerning the mechanical condition of its productive equipment.

According to A. M. Moseley, electrical engineer, Thomaston (Ga.) Cotton Mills, who furnished the explanation accompanying the chart shown in Fig. 1, the power saving alone on individually motor-driven looms in one weave room, due to this change, amounted to $1,665 per year, repaying the investment of $450 for ball thrusts in less than four months of operation.

Examples of power savings obtained in other departments of the mill can be cited. Improper lubrication of spinning and twisting machinery, a constant source of trouble and excessive power consumption, can be detected by the use of portable recording or indicating

Fig. 2. (above) Portable graphic wattmeter
Fig. 4. (at extreme right) Motor-starting switch mounted on special pedestal.

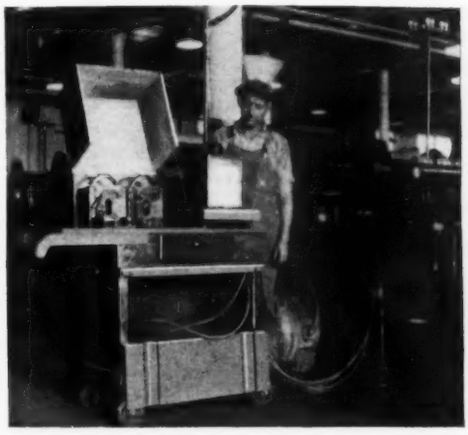


Fig. 3. (at center) Graphic wattmeter and auxiliary current transformer mounted on portable table.

Figs. 1, 2, and 4 courtesy Esterline-Angus Co.; Fig. 3, Walker Electric Co.

instruments. Graphic instruments, such as the type illustrated in Fig. 2, are used also for determining the effect of machine speeds on power consumption, underloading and overloading of motors, maximum demand, power factor, and friction losses. Such studies often make possible the reduction of wear and breakage of machine parts due to tight bearings or other mechanical ills. The graphic meter, together with auxiliary transformers, mounted on a portable table or carriage, is shown in Fig. 3. Another type of portable testing device includes an ammeter, a voltmeter, a polyphase wattmeter, and a polyphase power-factor meter, complete with current transformers.

Another development which has contributed to the ease and convenience of testing the power consumption of looms is a specially designed mounting pedestal for a motor-starting switch, into the base of which a small test jack is applied. This arrangement, shown in Fig. 4, makes it a matter of only a few seconds for the operative to connect the testing apparatus into the motor circuit, eliminating all special wiring and other attachments and stopping of motor or machine. The jack may be applied either by the use of a separate box, or in the base of the switch pedestal, such as that illustrated.

Builders of instruments report growing interest on the part of textile manufacturers in the problem of power studies. Engineers specializing in textile consulting work also have observed this trend to a more scientific approach to the subject, and predict that many possibilities along this line have not yet been explored.

Pepperell Applies Maxim

THAT PROMOTION BEGINS AT HOME

AN UNUSUAL community campaign marked the formal recognition of the Pepperell Mfg. Co.'s new rayon weaving unit, located in Fall River, Mass. This campaign, lasting ten weeks, was planned to interest stores and consumers in Fall River and vicinity in the general range of Pepperell fabrics, and to stimulate a feeling of good-will and pride among the workers of the city.

The opening gun was fired on Feb. 8, when 200 of the leading citizens of Fall River attended a banquet, given in the recreation room of the mill, where officials of the company and others spoke; a tea was later given for prominent women. Once each week for the ten following weeks large advertisements were run in each of the leading English, French and Portuguese newspapers, with local stores cooperating.

Considering the nature of the campaign, the advertising did not feature the usual consumer copy, but stressed the community angle; promotion of the general Pepperell line being discreetly implied. One advertisement, for example, headlined the fact that of all the Pepperell fabrics, the finest are made in the Fall River Division. The fact that broadcloth for "Lord Pepperell" shirts is made in the plant was not allowed to go unheralded. Another advertisement showed the open gates of the mill and featured the "Visitors Welcome" sign. As a follow-up a part of the mill has been set aside for a display of Pepperell products in home surroundings.

When the cotton section of the Fall River Division was started up four years ago, a single-time advertisement was run in local newspapers stating that Pepperell was glad to locate in Fall River, had faith in the town, etc. The fact that this good-will-building approach has been greatly elaborated in launching the rayon unit, indicates that the company has determined that such methods have direct results in consumer sales and also in the less readily measured field of worker good-will. From the long-range view of the Fall River territory, the latter is, of course, the more interesting development.

The rayon unit, in itself, is interesting for two reasons: In the first place, it marks the entrance of Pepperell into the rayon fabric market for the first time; in the second place, since the set-up is new, the selection of equipment is worth study from the efficiency standpoint. It is well known that Pepperell, starting with a reputation for jeans, has built up an extensive line through medium and high-count sheetings to high-count broadcloths and sheers. The rayon unit is simply another step in diversification of product; another line on which to capitalize the prestige gained by the name "Pepperell."

Rules for Wool Goods

SELLING ARE NOW IN EFFECT

THE rules of practice and merchandising for the piece goods selling division of the wool textile industry are now in effect. Following approval on March 27 by General Johnson for NRA, and following the vacating by court action of the "consent decree" entered against the former Wool Institute, the Code Authority gave due notice of the effectiveness of the rules and they became operative April 30 with the price provisions held back till May 7 pending setting up of suitable machinery.

It is expressly stated that the rules are not retroactive and consequently they do not affect the terms of business previously booked.

In approving the rules General Johnson made them subject to the following: (a) Provisions for the filing of price lists shall not be construed to prevent any member of the industry from changing prices, provided that such changed price is promptly reported to the association in the manner provided for; (b) Prices as filed shall be available to all persons properly requesting such data.

Rules of practice and merchandising for the piece goods selling division follow:

IN ACCORDANCE with Article XII of the Code of Fair Competition for the Wool Textile Industry, the following rules for the sale of textile fabrics in the piece are hereby adopted and are binding upon every member of the Piece Goods Division of the Wool Textile Industry.

I. *Definitions:* (Omitted here)

II. *Uniform Sales Contract:* Every sales contract or order shall contain the following provisions:

1. This order is not subject to cancellation except for failure to deliver in accordance with conditions of sale.

2. Sellers shall not be held liable for delayed delivery or for non-delivery caused by strikes, fires, or other causes beyond their control. If the production of the mill is curtailed by such causes, deliveries shall be demanded only proportionate to the production.

3. The acceptance by common carrier shall constitute delivery.

4. Merchandise shall not be returned nor allowance made after 30 days from receipt, nor after goods are sponged, cut, or otherwise processed. A period shorter than the maximum of 30 days may be specified on highly seasonal merchandise.

5. Terms of sale and delivery are set forth herein. Any additional conditions or specifications applying to this order must be stated on the face hereof, and may not be in conflict with the provisions printed hereon.

6. Partial deliveries shall be paid for at contract prices upon maturity of bills therefor.

7. This order is given and accepted subject to limit of credit determinable at any time by the seller.

8. All freight, express, and delivery charges shall be paid by or charged as a separate item to the buyer. This shall not apply to the difference between express and freight, which difference shall be paid by the mill if goods are ordered by freight but are shipped by express because of lateness in delivery.

9. Any complaint, controversy, or question which may arise with respect to this contract that cannot be settled by the parties thereto shall be referred to arbitration. If the controversy concerns the condition or quality of merchandise it shall be referred to the Mutual Adjustment Bureau of the cloth and garment trades pursuant to the rules and regulations thereof. All other controversies shall be submitted to the Panel of Unfair Trade Practices and Dispute under the Sub-Code Authority of the Piece Goods Selling Division of the wool textile industry, or, at the buyer's option, to the American Arbitration Association as more fully set forth in Article XIV of the Code.

10. The prices and terms quoted on this order are those actually applying to this transaction and are not subject to any discount not stated hereon, or to any rebate, or modification.

III. *Signed Orders:* No order shall be accepted for delivery beyond ten days from the date thereof until a duplicate copy of order, bearing the terms provided for in Article II hereof, and signed by the buyer, has been received by the seller.

IV. *Terms:*

1. Maximum terms of all orders shall be 1% ten days, net 60 days from date of invoice or shipment, whichever is earlier; anticipation to be at the rate of 6% per annum; additional time to be charged for at not less than 6% per annum.

2. No dating may be given, except when specially approved in advance by the Sub-Code Authority.

V. *Discounts:*

1. The seller may give special discounts to—

A. Jobbers; or

B. Buyers placing single orders for specified yardage; providing such discounts are not retroactive and are in accordance with a schedule previously filed with the Association.

2. Upon the effective date of these Rules each person or concern subject thereto will file with the Association a schedule indicating his or its individual intent in respect to the following:

A. Dating (how given),

B. Discounts to jobbers,

C. Discounts for quantity (based upon what yardage).

These discounts must not be exceeded and will remain in effect until due notice is given the Association of any change.

VI. *Price Registration:*

1. Immediately after the effective date of these Rules, all members of the Piece Goods Selling Division shall file complete price lists with the Association, showing the type of fabric, the price per yard, average width, and average weight.

2. Prices of goods sold to a secondary distributor who is subject to these rules by definition, or who may become subject by agreement, need not be filed, provided said distributor files the prices at which they are resold to the trade, and providing further that such goods are resold in accordance with the Code and with these Rules and that operations under this paragraph are approved by the Sub-Code Authority and the Code Authority.

3. Such filed prices may be changed at any time, but the Association must be immediately notified of such change.

4. All sales of seconds, close-outs of seasonal merchandise, discontinued styles or fabrics, or damaged goods must be reported to the Association. In selling such merchandise both the tickets and the invoices must be plainly marked to specify one of the above classifications.

5. On demand of the Code Authority or Sub-Code Authority and for a specified reason, any seller shall furnish to the Association reference samples of any of their listed styles.

6. Upon the formation by the division of any subgroup and the establishment by such subgroup of any system of open prices, price registration or the like, and approval thereof by the Code Authority and the Administrator, the members of such subgroup will not longer be obligated to observe the general provisions of price registration as set forth in this Section as respects the products coming under the control of such subgroup.

VII. *Optional Compliance With Articles V and VI*

1. If any seller deems that it will be impracticable to comply with Articles V and VI because of conditions prevailing in its business, such seller may, upon written notice to the Association, follow the plan of furnishing to the Association daily carbon copies of all contracts or accepted orders for goods as sent out to buyers (omitting the names and addresses of buyers) and the following of such plan will be treated as equivalent to compliance with the provisions of Articles V and VI. Such carbon copies shall be exact copies in every respect including all details shown by the original except for the name and address of the buyer.

VIII. *Freight and Delivery*

1. Shipments shall be f.o.b. common carrier most convenient to the mill or delivered by the mill's own truck, the cost of delivery from the mill to the customer shall be charged for on the invoice as a separate item not subject to discount.

2. In case goods are rejected for due cause, the cost of delivery and return of the goods shall be paid for by the mill.

IX. *Refusals and Cancellations:*

1. All unjustified refusals and/or cancellations shall be reported to the Association.

2. A file containing the details of such refusals and cancellations, classified as unjustified after due review by the Association, shall be kept by the Association and shall be accessible to members of the Industry.

X. *Unspecified Orders:*

1. No unspecified order shall be accepted unless it shall contain a definite date for specification. It shall also stipulate tentative specifications including date of delivery for executing the order in the event that the buyer shall fail to make other specification by the agreed date.

2. All unspecified orders shall provide, by suitable notation thereon, that if the buyer does not make any change in his tentative specification, or if he fails to confirm same in writing on or before the agreed date, the seller may deliver goods according to the tentative specifications, and delivery of such goods shall constitute a good delivery under the order.

XI. *Samples:*

1. Reference samples, or selling samples, shall remain the property of the seller, and are to be returned by the buyer on demand.

2. Nothing in these rules shall prohibit the shipping on memorandum or consignment of not more than one sample piece of a fabric to a customer.

3. Selling ends, where supplied, shall be at customer's expense.

XII. *Disposition of Business Beyond the Capacity of the Mill in Which the Goods Originated.* 1. In case the production of a mill which is sold through a selling agency which is independent of said mill, is entirely sold, and the mill or the sales representative of the mill desire to make arrangements with some other mill for the manufacture of a further quantity of the goods, such arrangements are only to be made if the mill in which the goods originated, and the sales representative of that mill, and the mill which desires to produce the goods beyond the capacity of the originating mill, participate in them. Such arrangements shall set forth the details of the transaction, including the disposition of the compensation arising therefrom.

XIII. *Effective date:* (Omitted here)

XIV. *Government Contracts:* Nothing in these Rules shall operate to prevent members from bidding on Government, State, or Municipal Contracts and quoting a net price, F.O.B. delivery point if such delivery is specified in the official request for bids.

THE PERSONAL PAGE

Charles F. Broughton, treasurer of Wamsutta Mills, New Bedford, Mass., since 1919, has been elected president succeeding the late Horatio Hathaway. He retains the office of treasurer.

The term of **Henry P. Kendall,** president of Kendall Co., on the NRA Industrial Advisory Board expired May 1. He continues, however, on Secretary Roper's advisory council and recently was appointed a vice-chairman of this long-range planning group.

Harry O. King, since early in July, 1933, a deputy administrator in Division 2, has succeeded **Arthur D. Whiteside** as division administrator of Division 4, in charge of the textile finance and retail codes.

Arthur S. Thayer, formerly assistant general manager and vice-president of the Allen-A Co., Kenosha, Wis., has been named general manager of the company, succeeding the late **Robert N. Kimball.**

Cyrus H. Hecker has resigned as president of the Princess Royal Hosiery Mills, Inc., Philadelphia, Pa.

W. G. E. Aird, has been appointed general manager of Montreal Cottons, Ltd., Montreal, Que. Mr. Aird had been manager of the Valleyfield mills for the past two years.

Dr. B. E. Geer, president of Furman University, Greenville, S. C., and **W. G. Sirrine,** president of the Southern Textile Exposition, were speakers at the opening exercises of Slater Hall in the mill village of Slater (S. C.) Mfg. Co. The exercises commemorated Samuel Slater who established the first cotton mill in the United States nearly 150 years ago.

Walter H. Paige has succeeded **John Sullivan,** resigned, as agent at Taber Mills, New Bedford, Mass. Mr. Sullivan remains as member of the board of directors.

Sam Kaplan of B. D. Kaplan & Co., Inc. has been elected chairman of the code authority for the wool stock trade.

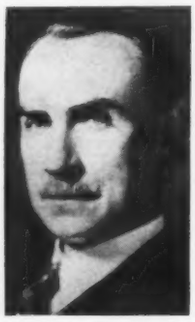
E. W. Walton, formerly manager and secretary of the Hickory (N. C.) Hosiery Mills, Inc., will be manager of a new plant which has been organized at Hickory to engage in custom finishing and manufacturing.

E. J. Abbott and members of his family were tended a reception on Apr. 21 by employees of Hillsborough Mills, Abbott Worsted Mills and Abbott Machine Co., Wilton, N. H., in commemoration of the 25th anniversary of Mr. Abbott's connection with the business.

Albert L. Scott was reelected president, National Assn. of Finishers of Cotton Fabrics, New York, May 10.

D. A. MacKenzie, of the office force of Standard Hosiery Mills, Inc., has recently been appointed operating receiver for Boland Knitting Co., Burlington, N. C. Baker-Cammack Textile Corp., Graham, N. C., is taking the production.

M. C. Ewing is now general superintendent of the Campbell Mfg. Co., Maiden, N. C., having resigned as superintendent of the carding and spinning departments of the Carolina Mills, Maiden, to accept this new position.



Francis T. Lyons

Johnfritz Achelis

Francis T. Lyons, who has been president of Commercial Factors Corp., New York, has been elected vice-president of the parent company, the Commercial Investment Trust Corp., in charge of all factoring activities. He is succeeded as president of Commercial Factors Corp., by **Johnfritz Achelis,** formerly executive vice-president and vice-chairman of executive committee. Mr. Lyons remains as chairman of the executive committee. He has been with the factoring industry since 1903 when he entered the credit department of Wm. Iselin & Co. whose factoring business later became one of the C.I.T. units. Mr. Achelis represents the third generation of his family to serve the business founded as Fred Vietor & Achelis in 1842. This business was merged with Peierls, Buhler & Co. in 1929 to form the Commercial Factors Corp.

Walter S. Brewster, Pacific Mills, was reelected president of Textile Export Association of the U. S., at its annual meeting in New York early in May. **Frank S. Bruyn** was reelected vice-president; **Frederick A. Colt,** reelected secretary and **W. Ray Bell,** reelected treasurer.

J. P. Atkinson of Dobson & Walker, fine yarn doublers of Nottingham, England, is visiting this country making headquarters at offices of Rider-Osborne-Devine, Inc., Philadelphia.

B. G. Woodham has resigned his position with Precision Gear & Machine Co., Charlotte, N. C., to become assistant superintendent of Sanford (N. C.) Cotton Mills.

Amos P. Smith has been elected secretary of the Russell Mfg. Co., Middletown, Conn., to succeed **J. Harold Williams.**

Clarence A. Weiller, New York, was elected to succeed Robert Schey as president of the Textile Designers Guild of America at a meeting early in May.

C. H. Lockmon has been appointed superintendent of J. W. Sanders Mill No. 3, Meridian, Miss. He formerly held a similar position with Alabama Cotton Mills, Jasper, Ala.

C. A. Butterworth has become superintendent of Meritas Mills, Columbus, Ga., succeeding **W. J. Holden,** who has been promoted to local manager.

C. M. Padgett, superintendent of Lonsdale Mills, Seneca, S. C., has resigned.

J. C. Montjoy has been appointed superintendent of Riverdale Cotton Mills, Enoree, S. C., succeeding **L. O. Bunton,** who resigned.

Joseph Friedland has resigned his position as superintendent of the Philadelphia mills of the Gotham Silk Hosiery Co.

W. A. Hunt has been promoted to superintendent of the Bamberg, S. C., plant of Santee Mills; his former position as overseer of carding and spinning at the Orangeburg unit being taken by **T. B. Hunt. E. L. Holt** has been promoted to the position of overseer of carding and spinning at the Bamberg plant, succeeding **W. A. McAbee** who resigned.

Thomas H. Hagen, formerly vice-president of the Textile Development Co., Boston, has joined the Amoskeag Mfg. Co. as superintendent of the cotton division.

J. C. Montjoy has been appointed superintendent of the Riverdale Mills, Enoree, S. C., succeeding **L. O. Bunton** who recently resigned.

Fred C. Kenzie has been appointed to act as secretary of the Spencer (N. C.) Corp., succeeding **G. B. Howard,** who resigned to become secretary of the Spindale Building and Loan Association.

W. J. Holden has been promoted to local manager of the Meritas Mills, Columbus, Ga., and is succeeded as superintendent by **C. A. Butterworth,** formerly superintendent of the Mobile Cotton Mills, McComb, Miss. **S. W. Armitage,** assistant superintendent of Mobile Cotton Mills, Selma, N. C., succeeds Mr. Butterworth. **Fred Hagen** has been made local manager of the Mobile Cotton Mills in Alabama and Mississippi.

Winder Gary, superintendent of the Edna Mills Corp., Reidsville, N. C., has been made superintendent of the Lonsdale Co. of R. I., Seneca, S. C., succeeding **C. M. Padgett** who resigned.

C. H. Lockman, superintendent Alabama Mills Co., has been made superintendent J. W. Saunders Cotton Mill No. 3, Meridian, Miss.

L. L. Barnwell has been appointed superintendent of the Tifton (Ga.) Cotton Mills, succeeding **M. W. Mayes,** resigned.

A. F. Garrison has been made superintendent of the Hartwell Mills, No. 1, Hartwell, Ga., succeeding **H. O. Rogers,** resigned.

H. Raiford Gaffney has been made assistant superintendent of the Sibley Mfg. Co. and Enterprise Mfg. Co., Augusta, Ga.

J. Hal Asbury has been made chemist and research engineer of the testing laboratory at the Richmond Hosiery Mills, Rossville, Ga.

Frank S. Dennis has been made general superintendent of the Granite Falls Mfg. Co. and the Granite Cordage Co., Granite Falls, N. C.

Henry McKelvie has been promoted to the position of resident manager of the High Shoals, N. C., unit of Manville-Jenckes Corp., succeeding **John A. Baugh, Jr. Clarence L. Jolly** has been appointed acting general superintendent of the Loray unit, succeeding **O. G. Morehead.** Messrs. Baugh and More-

head have leased, and will operate, the Gaston Mfg. Co., Cherryville, N. C.

Paul F. Scharschmidt, superintendent of dyeing and finishing, Hamilton Woolen Co., Southbridge, Mass., has resigned. It is reported that **Carl G. Hard** is his successor.

C. L. Jolly, overseer of spinning at the Loray plant of the Manville-Jenckes Corp., Gastonia, N. C., was recently promoted to general superintendent of that plant, succeeding **O. G. Morehead,** who resigned to enter the textile manufacturing business at Cherryville, N. C.

Norman B. Hill is superintendent of the newly formed Roseboro (N. C.) Division of Chesterfield Yarn Co. **Thomas F. Keyer** is overseer of carding, **D. R. Whitener** overseer of spinning and **E. M. Hoover** master mechanic.

John Archer, foreman of full-fashioned knitting, Wayne Knitting Mills, Fort Wayne, Ind., has been appointed general superintendent, succeeding **John S. Doermer,** resigned.

B. S. Askew has been appointed superintendent of the carding division of the Athens (Ga.) Mfg. Co.

Seth Newsom has been promoted to assistant superintendent of two of the Callaway Mills plants, LaGrange, Ga.

L. R. Reynolds, formerly in charge of the slashing division of the Central Falls (N. C.) Mfg. Co., has resigned and is now superintendent of the warping and slashing divisions of the Virginia Mills, Swepsonville, N. C.

W. W. Ware, formerly with the Neisler Mills, Inc., Kings Mountain, N. C., is now superintendent of the dyeing, Anchor Mills, Huntersville, N. C.

Obituary

Edward G. Bucklin, aged 83, president and treasurer of the Interlaken Mills, Providence, died on April 3.

Harry B. Hanson, aged 52, president of the Hanson Woolen Co., Chicago, died April 18.

W. A. Smith, aged 92, who organized and headed the El Dorado (N. C.) Cotton Mills for many years, died recently at Ansonville, N. C.

George H. Wilson, aged 74, treasurer of the U. S. Bobbin & Shuttle Co., Providence, R. I., died on April 11. He had been president of the Bobbin Manufacturers' Association from the time of its organization to his death.

Harry D. Lord, aged 59, died May 1 at his home in Saco, Me. For many years he was with Saco-Lowell Shops. For the last five years he represented Jos. Sykes of England, card clothing manufacturer.

William Rawitser, aged 64, president of South Acton (Mass.) Woolen Co., and secretary-treasurer of National Association of Wool Fiber Manufacturers died May 3.

Thomas Lowe Warburton, superintendent of Amoskeag Mfg. Co., Manchester, N. H., died recently.

William E. Ahern, general sales manager of Johnson & Bassett, Inc., wool spinning machinery, Worcester, Mass., for the last 11 of his 45 years connection with that company, died April 18 at the age of 68. He began his textile career with the Slater Mills when 10 years old. He later joined the machinery firm as machinist's apprentice. He was an authority on wool spinning devices.

Thomas Drew Dunnell, associated with the U. S. Finishing Co. since its formation, died in Brooklyn, N. Y., at the age of 77. He began his career in his uncle's organization, the Dunnell Print Works, Pawtucket, R. I.

Louis Harmuth, of Fairchild Publications Co., New York, and author of Harmuth's Dictionary of Textiles, died on April 25 in South Orange, N. J.

William Copeland Peirce, aged 70, former president and treasurer of the Providence Machine Co., and former president and treasurer of the defunct Elizabeth Mills, Hillsgrove, R. I., died at his home in Providence, on March 28.

James A. Leak, aged 78, died April 12 at his home in Wadesboro, N. C. He was a director of the Wade Mfg. Co., the Wadesboro Cotton Mills, and the Pee Dee Mfg. Co. of Rockingham.

William S. Kimball, aged 85, secretary of the Clinton (Mich.) Woolen Mfg. Co., and an employe of the company for 60 years, died April 10.

H. H. Pruitt, aged 60, for the last sixteen years purchasing agent for the Union-Buffalo Mills, Union, S. C., died April 23.

E. W. Benjamin, operator of the former Maginnis Cotton Mills, New Orleans, La., from 1914 to 1922, died at the age of 69 years.

Perry E. Miller, aged 67, treasurer and general manager of Musgrove Knitting Co., Pittsfield, Mass., died recently.

New A.S.T.M. Committee

A new committee of the American Society for Testing Materials, designated the Sectional Committee on Electrical Insulating Materials, was organized at a recent meeting at A.S.T.M. headquarters in Philadelphia. The committee will serve as a clearing-house on data relating to electrical insulation and will participate in A.S.T.M. standardization activities. H. L. Curtis, of the U. S. Bureau of Standards, is chairman of the body, which comprises representatives of eight organizations.

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Plan Joint Convention

With the aim of exchanging views on topics of mutual interest, the Sales Promotion Division of the National Retail Dry Goods Association and the Advertising Federation of America will hold joint sessions, June 17-20, at the Hotel Pennsylvania, in New York.

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Lowell Alumni to Meet

Plans announced for the annual reunion of the Lowell Textile Institute alumni, to be held May 19 at Lowell, Mass., include four technical meetings held simultaneously in different class rooms and devoted respectively to cotton, wool, engineering, and chemistry. R. A. Forsaith, '16, just returned from 4½ years in Shanghai, will discuss textile conditions in China. In the afternoon the alumni will have the option of attending the Textile-New Hampshire baseball game or playing golf at the Vesper Country Club, and an evening banquet will be held at the club.

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"Battle of Fibers" May 21

"The Battle of the Textile Fibers" will be the subject of a seminar to be held Monday, May 21, at the Waldorf-Astoria Hotel, New York, by the International Statistical Bureau, Inc. The bureau will present the results of an extensive study showing the competitive relationship between fibers, with particular reference to the changes brought about by the advent of rayon and other synthetic textiles.

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Machinery Code Ruling

Division Administrator A. R. Glancy has signed an order permitting the code authority for the textile machinery manufacturing industry to handle trade practice complaints on reference from the State NRA compliance directors. By the terms of this order, all such complaints should be filed with the State director of the State where the complaint originates. He will then refer it to the code authority, which has a limited time in which to make an adjustment. If no adjustment is made within the time limit set, the matter is then referred back to the compliance director who will proceed with the adjustment dealing with both parties to the complaint.

In the trade practice complaints are included charges by a competitor that a member of the industry is violating wage and hour provisions.

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Air-Conditioning Course

A new correspondence course in air-conditioning is being offered to all residents of the United States by the University Extension, Massachusetts Department of Education, Boston.

Textile Calendar

Eastern Carolina Division, S.T.A., Parker High School, Greenville, S. C., May 19, 1934.

Cotton Mfrs. Assn. of Georgia, annual convention, Cloister Hotel, Sea Island Beach, Ga., May 18 and 19.

Piedmont Section, American Association of Textile Chemists and Colorists, Poinsett Hotel, Greenville, S. C., May 19.

Northern North Carolina-Virginia Division, Southern Textile Association, King Cotton Hotel, Greensboro, N. C., May 26.

Committee D-13 American Society for Testing Materials. Annual Meeting, Chalfonte-Hadden Hall, Atlantic City, N. J., in week of June 25 to 29, 1934.

Southern Textile Association, Annual Meeting, Ocean Forest Hotel, Myrtle Beach, S. C., June 29-30, 1934.

Southern Textile Exposition, Eleventh Annual Exhibit, Textile Hall, Greenville, S. C., Oct. 15 to 20, 1934.

American Society of Mechanical Engineers, Textile Division, meeting with Greenville Section, Greenville, S. C., Oct. 15, 1934.

Federated Textile Industries, Inc., successor to Silk Association of America, Annual Dinner, Waldorf-Astoria Hotel, New York, Feb. 28, 1935.

THIS DEPARTMENT—

offers a new subject for discussion every other month and gives readers' comments on problems introduced in previous issues. It alternates with the "Kinks and Wrinkles" department. The subjects opened in February and March are closed and summaries of contributed ideas are given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "Best Method of Handling Learners" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

Overseers'

THE BEST METHOD OF

"WITH some types of skilled workers rather scarce in certain sections of the country," said Superintendent Chase as the meeting opened, "I think that we might have a more extensive discussion of the best means of teaching new workers. What are your ideas on the subject?"

"Not long ago," Pete spoke up, "I was talking with the employment officer of a large mill when a worker came to the window looking for a job. The mill needed help, but this particular applicant had had no experience in textiles whatever. The employment manager told the man to decide what department he wanted to go in, get a note from some experienced worker saying that he would be willing to teach the new man, get a note from the overseer saying that it was okay, and then come back and he would be hired. The lad looking for a job didn't know how to go about all this and he went away looking pretty glum."

"Now, it seems to me," Pete continued, "that any such an old-fashioned method is bound to be pretty inefficient. If I have to add a certain number of learners to my department I make definite plans for their training and I wouldn't depend on the old apprentice system. In other words, I'd detail a sufficient number of the better operatives to act as teachers and I would personally supervise their work. This training crew would handle all the learners who came into the department. This plan can be worked out for a mill of any size. In a really large mill there is much to be said for a regular, permanent training school."

Curtailment and Pay

Editor, Overseers' Round-Table:

I believe that an Overseer should be paid a fixed wage or salary regardless of the running schedule of the mill. In this way he is made to feel that he is a more responsible part of the organization, and appreciated as such. He realizes that he is being paid to produce the highest quality at the lowest cost.

He will be able to give his department much creative and constructive thought that might otherwise, through necessity, be used on some outside venture to supplement his income.

A good overseer's work is never done. He always puts in more hours than the mill actually requires, and often carries the problems of his department home at night for consideration. There will be no time for idleness. Many experiments may be performed that the Overseer could not carry on when the mill is running.

The fellow was right who said, "stop his pay when the whistle blows and you stop his thinking."

P. C. BEATTY.

Editor, Overseers' Round-Table:

Competent overseers are the key men in any well organized manufacturing establishment and as such, their wages should not be based on the operating schedule of the mill, but rather as a part of the fixed running expenses of the plant.

In the event that curtailment of hours and production becomes necessary for an extended period, it is far better to adjust the overseer's weekly salary during that time than to risk lessening the enthusiasm and lowering the morale of a competent man by paying him on an actual hours worked basis.

Any overseer worthy of the name, and worthy of the position he holds has the interests of his concern at heart 24 hours a day during good times and bad, and it is no more than good business to see that such loyalty does not go unrecognized and unrewarded.

H. M. SMITH.

Editor, Overseers' Round-Table:

An overseer should have a weekly salary for several reasons, the most important of which, is, in my opinion, that this fact definitely separates him from the employees who receive hourly rates.

In this case that I have assumed, he has a job that is desirable, that gives him some security, and that rewards him for some of the extra time and thought he has to expend to do first-class work. It makes him more of a person in the eyes of his workers and also in his own estimation of himself.

It doesn't cost his employer any more. In fact I think it is less expensive because the overseer then has the incentive to work hard and make savings because he has a job that is worth holding.

On the other hand, if you pay an overseer an hourly rate, lay him off on holidays and during slack periods, he lacks ambition and incentive, and makes no effort to improve his department. And the chances are he is on the lookout for a job that will pay him a weekly salary.

JOHN T. GIBBONS.

Editor, Overseers' Round-Table:

The practice of docking a salaried overseer whenever the firm goes on short time is one that causes resentment and gives the man a feeling that he has been cheated out of his just due.

In order that the manufacturer may also be considered in his endeavor to keep down overhead during curtailment, I offer the following plan which has worked out successfully in some mills:

Overseers are engaged for a fixed salary with the understanding that any absence of work in excess of six weeks in any year will result in a reduction in salary of 50%. Thus, if an overseer is not at work for a period of more than six weeks he will only receive half salary for the remaining time.

If this arrangement is mutually agreed upon between overseer and employer, there will be no necessity for any argument whenever the question comes up.

W. H. S.

Round-Table

HANDLING LEARNERS

"It costs a lot of money to teach a new worker," Bill replied, "particularly since the period of the apprenticeship wage is now limited. Under the circumstances, I think that it is best to follow the old method of leaving it more or less up to the learner to find some older worker willing to do the teaching. Any set-up such as Pete suggests is bound to be more expensive. The teachers he picks out won't do much in the line of regular production and the overseer also uses up some of his valuable time."

"If I may be so bold," young Hank spoke up, "I think that Bill's all goofy in his reasoning. With the time of the apprenticeship wage limited, the faster the mill trains a worker the better off it is. Isn't it better to spend a little more money in the first place than to find yourself in the position of paying a sub-standard worker standard wages? Also, before I finish, I'd like to put in a word for the value of vocational training schools. I think that mills would gain a lot by supporting such schools more than they do."

✦ How do *you* handle the problem of learners in your department?

Editor, Overseers' Round-Table:

Regarding the basis on which overseers should be paid, the writer feels they should be on the same basis as the secretary-treasurer, general manager, superintendent and buyer. The success of any plant depends on the organization. This organization should be paid on the basis of its ability to earn a dividend for the stockholders. Every member of the above organization should be made to feel that his pay will be governed accordingly.

No chain is stronger than its weakest link, and everyone in the above organization is an important link. You can't weaken the chain with incompetent men and get results.

When you place an overseer on the same basis as you do your day laborers, and he knows the higher officials are not so paid, he feels it, and it is natural that he will not take so much interest in his job.

Recently, an outstanding executive, who had been very successful in a large organization, died. I noticed in the write-up of his life that his success to a great extent was due to his surrounding himself with competent men.

S. S. R.

Handling Complaints

Editor, Overseers' Round-Table:

I believe Superintendent Chase should take complaints up with the overseer he believes responsible for the trouble.

If he were to take it up in the meeting it would appear as a routine matter upon which there was no hurry, so it might be possible that the overseer found at fault would forget to remedy it upon returning to his department. It would also be possible for the complaint to be received immediately after a meeting and have to wait until the next meeting to be corrected, meanwhile the mill would go on producing more defective goods.

If Mr. Chase were to take his time, which is known to be more valuable than that of any other employee, to take the defective material out to the overseer he thinks responsible it would impress the whole department more. The first instinct of the overseer would be to pass the buck, but his second act would be to attempt to make sure that he was not responsible. In this he would have the best cooperation of the fixers and operators as they would not think it somebody's silly notion, because they will have noticed Mr. Chase's visit.

Another reason why speed in curing the defect is essential is that if one customer complained no doubt many more just decided to buy a competitor's product.

While talking to the overseer, Mr. Chase should be careful that no one overhears, as everyone hates to be bawled out within earshot of another person.

HERBERT P. HINCKLEY.

Editor, Overseers' Round-Table:

In the majority of cases, it is my opinion that there is only one way to handle complaints from customers about defective merchandise, and that is to bring it to the attention of all of the overseers.

In many instances, it is rather difficult to pin a defect down to one department and no overseer should be so handicapped or his vision so narrowed that he knows only what goes on in his own section of the plant. Many times a foreman is transferred from one department to another, or his job increased to handle two or three departments. The best aid or training for this additional responsibility, in the interest of the company as well as the overseer, is to let those in charge of each department know the quality of the merchandise being produced throughout the entire plant.

If a defect in the merchandise shown to an open meeting of overseers proves to be from one particular department, the man responsible, rather than feeling like a goat, should be spurred on to do better work so that such an occurrence would not be brought to the attention of all hands again.

M. L. W.

SUMMARY

CURTAILMENT AND THE OVERSEERS' PAY—*Approximately 94% of the replies expressed the belief that overseers should be placed on a salary basis and should not be paid in accordance with the running schedule of the mill. The point brought out most frequently was that being an overseer was a full-time job regardless of the number of hours the mill operated. The minority believed that payment on an hourly basis was fair and that it kept costs geared to production.*

HANDLING COMPLAINTS—*By a majority of only a few percentage points, the vote was in favor of having the superintendent take up complaints directly with the individual department head he believed responsible. Those on the other side of the fence believed that the best results were obtained by taking up complaints at meetings of all the overseers.*

QUESTIONS AND ANSWERS

Silk Filling Uneven

Technical Editor:

We have been experiencing some trouble caused by the filling showing unevenness in our finished cloth. We use a 2-thread, 20/22-denier Japan silk, twisted 60/65 turns. The right-hand twist shows up heavier than the left-hand twist. Our spinning machinery is belt-driven, and the speed of the right-hand spinning machine is practically the same as the left-hand spinning machine. The same type of flyer is used on both threads.

Any information that you can give us regarding the causes of this will be greatly appreciated. We are inclosing a sample of our finished cloth. We have marked with red pencil, the even and uneven filling. We are also sending four cops of thrown stock used in this material. (8103)

Examination of the finished cloth and the four thrown cops of filling shows that the right twist averages 63 turns per inch and in some cases runs higher, while the left twist averages only about 58 turns and occasionally—particularly at the spots you have marked—runs so low as to be practically no twist at all. It is obvious, therefore, that your trouble is mainly in the throwing.

Somewhere in your twisting there is lost motion; and it is impossible for us to tell you, without seeing the machines, just where to look for it. Very possibly there is loose play in the driving mechanism, and we suggest that you check over your machines carefully and remove wornout parts. The belt drive is not responsible if the belts are pulling properly and the machine is set correctly.

Another matter requiring some consideration is the fact that your raw material does not appear to be even. In certain parts of the right twist the yarn runs as high as 22 denier, while in no section of the left twist could we discover so high a figure.

▼

Spots in Wool Crepe

Technical Editor:

We are inclosing a sample of wool crepe which we have tried to bleach and convert into other colors. You will note the spots which have not been penetrated by the dyestuff. Will you kindly make an examination of these spots and tell us if there is anything we can do to remove them. The spots were caused by grease dropping from the bearing on the dyeing machine. (8084)

We are returning swatches of the wool crepe which have been treated in various ways. The very small sample was treated as follows: Pure red oil was rubbed into the spot by means of a glass rod. The piece was then placed in a washer and given a thorough scouring using 4 oz. olive oil soap and 6 oz. of soda ash to 1 gal. of water. The high quantity of soda ash is necessary to convert the red oil into a soap. After the piece had been thoroughly scoured and rinsed free from soap, it was treated for 20 min. in a 3% solution of oxalic acid followed by a cold water rinse until all traces of acid were removed. The treatment with oxalic acid was given the goods with the thought in mind that the remaining stain was an iron stain and could be removed.

The larger samples were treated as follows: The goods were placed in the fulling mill and wet down with cresylic acid, solvent scouring material. This was applied in its straight or neat form and sufficient was used to wet out the pieces thoroughly. The pieces were run in a fulling mill for 20 min. to pound the solvent into the spot. The pieces were then removed from the fulling mill, placed in the washer, scoured with warm water, and then rinsed until free from solvent, etc. One sample was treated with oxalic acid, but apparently the metallic stain in the fabric is not one that can be removed with oxalic acid. All of the grease is removed from this fabric, and these goods can, no doubt, be dyed dark shades of brown, green, olive, and black without the stain showing.

These two samples represent the best results it was possible to obtain; and while they are not 100% satisfactory, we believe they will enable you to salvage much of the material in these darker shades.

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Knit Outerwear Design

Technical Editor:

I was very much interested in the article on herringbone set-up which appeared in the Feb. 14 number of TEXTILE WORLD. It treated entirely with means for producing the design on Brinton sinker-top knitting machines, with wheels, although the principles involved apply with equal force to pressers on loop-wheel spring-needle machines. While reading this article, however, I noted several statements which, while not essentially erroneous in themselves, might be considered to be misleading.

For a herringbone design, which is in effect a straight-line vertical design, it is not necessary that the wheels or pressers, as the case may be, divide into the number of needles in the cylinder with exactly one division over or under (plus or minus). To produce this design in a knitted fabric, it is necessary only that the number of cuts in the wheels or pressers and the number of needles in the cylinder be evenly divisible by the number of needles in the design division. In the case under discussion this number is 24.

This being the case, instead of its being necessary to select wheels or pressers of one division plus or minus, it would be possible to reproduce the design as diagramed with one wheel cut 72 (if not too small), two wheels of 96, three wheels of 120, one wheel of 144, and one of 168 (if not too large); or with a whole set of eight wheels with any one of the numbers of cuts in the above list. This is possible because in herringbone all divisions in each wheel or presser are of the same set-up.

Another matter. The design as diagramed shows blunt points in one direction and sharp points in the opposite direction. The author specifies the alternating of plain feeds with pattern feeds and the use of mixed materials such as silk and wool, as well as material all of one kind. The diagram specifies that each division in the wheels should begin and end with the same setting. This is correct for the design under discussion, with points in one direction terminating in two stitches, but would not be correct for herringbones with sharp or one-stitch points in both directions.

In the set-up for knitting with silk and wool (silk on plain feeds) the result would be an all-silk face in the dotted portion of the diagram with wool floated behind, while the undotted part of the design would show alternate courses of each material. Due to the fact that the dotted portion of the design represents tucked stitches, it follows that that portion of the fabric would have but eight stitches or courses in the same space in which the undotted portion represents sixteen courses or stitches along the wales.

With silk on the plain feeds the result would show a 2x2 herringbone with solid silk in one set of angles and mixed silk and wool in the other set; but the loftiness of the wool would tend to bury the silk in that portion of the design, while a tighter stitch on the silk would assist in the burying. With the dotted portion knitting tighter, however, and the undotted portion containing twice the number of courses, that portion, due to stitch distortion, is sure to puff up in a way that may or may not be undesirable.

In a fabric after this design knit all of one material it is possible that the blunt points showing rounded and the puffy effect of the plain stitch portions may be rather pleasing in appearance than otherwise.

J. FREDERICK CAHILL.

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Variation in Denier of Rayon

Technical Editor:

I shall appreciate any information you can give me on the following questions: (1) What variations may I expect to find in the denier of rayons, assuming 100-denier is desired? (2) At what point may I assume that the rayon has been stretched? (3) Will the stretched rayon dye a darker shade than normal rayon? (4) How can I determine whether or not the rayon has been stretched beyond its normal limit, other than by the denier test? (5) Will the answers to (1), (2), and (3) apply in a general way to all types of synthetic yarns and to all deniers? (8111)

You may expect a denier variation of plus or minus 3%. Most rayon manufacturers consider this good denier control.

The point at which rayon has been stretched cannot be determined on the basis of denier alone; if the denier varies more than 5%, stretching should be suspected, but other confirmatory tests should be made.

Stretched yarn will dye lighter, unless the yarn is allowed to shrink to its original position before dyeing. Shrinking is accomplished sometimes by scouring or desizing without any tension. Soaking the cloth in book form or desizing and scouring in rope form, as opposed to the jig method, will help to minimize effects of stretched yarn.

One can determine whether or not the rayon has been stretched beyond its normal

QUESTIONS AND ANSWERS

limit, other than by the denier test, by taking a measured length of rayon, wetting it, redrying, and remeasuring. The percentage loss in length of the original yarn roughly approximates the percentage the yarn has been stretched, both measurements being made under constant conditions of temperature and humidity.

These answers apply in a general way to all viscose process yarns in all deniers, but do not apply to acetate yarns.

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Oiling Rayon

Technical Editor:

We note in your annual review and forecast issue an article on oiling rayon. As yet, the rayon industry in Mexico is in its infancy, and the trade is made up practically in its entirety of small plants, each of which appears to have its own ideas in regard to methods and grade of oil for the oiling of rayon. We have practically no information on the subject, but due to your article, we are taking the liberty of asking you to furnish us with any information you may have in regard to the grade or grades of oils which are giving the best results. (8099)

There are many things to take into consideration in choosing a rayon oil, the main thought being to use one which will do the work satisfactorily at the least cost.

In any case, straight mineral oil is ordinarily employed. The grade of mineral oil used should depend upon whether or not it is to be scoured out in later processes. For yarns used in knitting material which is not to be scoured, or yarns oiled by converters who are selling dyed yarns in package form, a colorless and practically odorless carbon-free oil slightly heavier than kerosene is generally employed. Use of an oil of this type leaves dyed yarn and material near the original shade without odor in the finished material.

In oiling filling for weaving, or for knitting in cases where the oil is washed out, a thin, light motor oil will do the work cheaply and well.

In choosing an oil which is to be scoured, oil a few skeins and have the dyer scour and dye them. If the shade is level, you may feel safe to go ahead with that particular oil.

Many of the dealers in textile oils are in a position to furnish suitable grades of oil for treating rayon.

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Union Dyeing Without Union Colors

Technical Editor:

In your annual review and forecast number you ran an article relating to union dyeing with cotton colors which leave the wool uncolored and wool colors which leave the cotton colors undisturbed, making a perfect combination for union dyeing. Will you kindly give us more information regarding this process. (8109)

There is a large range of direct cotton dyes which dye cotton or rayon and leave silk or wool only slightly stained. This effect is most marked when the dyebath is slightly on the alkaline side. The addition of a protective colloid tends to keep the animal fibers whiter. Neutral-dyeing acid colors, of which there are many, are used

for the silk or wool. If you will write to any of the larger dye companies, you will be able to obtain the names of suitable dyestuffs of each class.

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Core Yarn

Technical Editor:

With reference to the article on core yarn in your March issue I would like to ask why your author recommends the use of a core costing as much as, and probably more than, the shoddy stock. The writer has used core yarns for the last 25 years and has employed both the double and single core for heavy stockings from 44 to 72 needles. We always found the method of using the jack spool the best, and the equipment for that method was less in the way.

We also made our own core on the woolen system. When spinning, we gave the yarn the reverse twist from the core twist and, by applying full draft, found we could put in more turns per inch. We got as little slip as with double core, and at much lower cost. We used Peeler comber for the core, single, and produced a softer yarn and fabric than by using double core or single core and continuous twist of core in spinning.

G. W. Sheeley.

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Dye Streaks in Knit Goods

Technical Editor:

We are having considerable trouble in dyeing a knitted fabric, in that streaks appear after the cloth has been dried. This defect does not occur every time, but we do not seem able to find out what causes it. We are inclosing a sample, and shall appreciate your advice regarding this matter. (8102)

There are two major causes for trouble of this nature. When two or more dyestuffs are used to make a certain shade—in this case a blue—these dyestuffs must possess the same properties. One important property is that they should dye at the same or very nearly the same rate of speed. If one dye goes on the cloth slowly and the other one quickly, streaks and unevenness may be caused by the color that jumps on the more quickly. Again, in bringing a shade up to standard (that is, to the shade to be matched) if you shade with a dye that jumps on quickly, or if the temperature of your dyebath is too hot, you may get streaks and unevenness. In shading, a level-dyeing color should always be used.

We are returning part of the sample which was boiled in a weak soda ash bath. This treatment removed the violet color used for shading the base dyestuff from a sky blue to a royal blue. You will notice that the small piece so treated is even and has no streaks, but is not the desired shade, because the shading color has been removed. It proves, however, that the violet or red-blue dye which you used was the one causing your trouble. Therefore you should obtain a shading color which will work better with your base color. It is quite evident that your trouble is due to a shading color which is not level-dyeing. It is probable also that the temperature of your dyebath is too high at the time you make your addition.

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Two-Tone in Hosiery

Technical Editor:

We are inclosing two stockings knit on a 42-gage machine. You will note that both stockings have a different color at the transfer point and one of them has streaks in the legs. I would like to know if this is caused by machine trouble (matching), improper processing of the silk (twist, etc.), or the stripping of the hose in the dye house. (8075)

The trouble is not due to machine matching or stripping in the dyehouse, but is clearly a case of mixing two lots of silk having very different characteristics. The dark section in the leg of one stocking has the same appearance as the dark foot in the other stocking, and the texture of the fabric in the dark sections is much clearer and duller than that in the light section, indicating a silk with a higher twist.

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Knitting Defects

Technical Editor:

We are anxious to secure an opinion as to the cause of the light and dark streaks in the inclosed knitted tube for sample purposes. In the third section from the top, which we have marked No. 5, there is a particularly good illustration of the condition; as you will note, the bands appear to be of a different color.

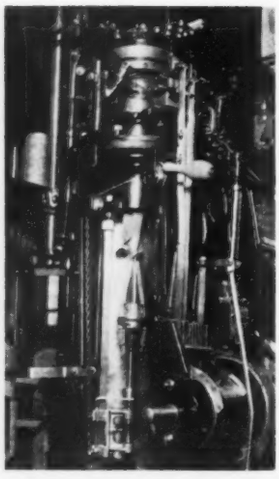
We are also inclosing a stocking knitted on the three-carrier system. This stocking shows a peculiar condition of the ribs or streaks. Can you tell us what causes this and how to eliminate it?

Also let us know whether or not, in your opinion, the streaks in the test knitting are caused by the same condition as those in the whole stocking. (8082)

We find that the light and dark streaks in the knit tubing are only a difference of light reflection due to a variation in weight of fabric caused by light and heavy denier silk. In the center of the third section referred to there is a very distinct difference in denierage.

There is no relation between this defect and the ribs or streaks found in the stocking knit with three carriers. Every third course in the three-carrier stocking has dyed a different shade, showing that one of the three cones is a silk of a different character from the other two. This condition, which is reflected in the high heel, produces a heather effect in dyeing. The light spots have the appearance of a misplate, where a soft twist silk is being plated with a hard twist silk. This leads us to believe that the light-streak is due to variation in twist. We suggest that the stocking be sent to a laboratory equipped to determine the twist of the silk.

NEW MACHINERY



Hosiery Rib-Top Transfer

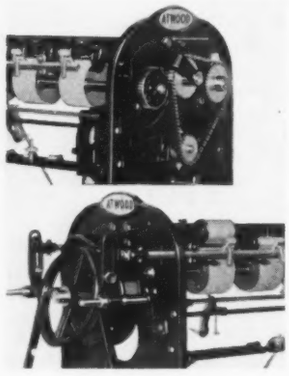
Rapid transferring of rib tops to circular hosiery machines is the purpose of a series of new devices applied to Banner machines by Hemphill Co., Pawtucket, R. I. Through this development it becomes unnecessary for the operator to insert her hand in the cylinder or to turn the machine by hand after transferring the rib stitches.

A sleeve cylinder, raised by means of a small foot-pedal, permits the rib stitches to be transferred to low needles which are held rigid by the cylinder construction. The operator, who has both hands free, simply inverts the transfer ring over the needles and drops the cylinder back into its original knitting position by removing her foot from the pedal. At this time she pulls a chain which brings a clamp weight into action. This reaches up into the cylinder and grasps the rib top to hold the stitches firmly on the needles. The weight then provides a slight tension during knitting which improves the appearance of the finished fabric. The clamp weight, which can be adjusted to any length of stocking, automatically disengages from the stocking when the knitting is finished.

A special safety lock prevents starting of the machine until the carrier ring is secure. When the ring has been dropped to knitting position, the machine is started by means of a knee-action tripping lever. The cylinder then makes four revolutions to insure the rib stitches being in the throats of the sinkers. The cam block drops into action automatically, and immediately thereafter the yarn lever drops into action, introducing the leg yarn.

Redraw

An improved redraw, known as the "Victor," which is entirely oilless, has been brought out by the Atwood Machine Co., Stonington, Conn. Another feature is that the bobbin stops automatically when an end breaks or when the bobbin is full, and it is stated that ridgeless bobbins are produced. Take-up may be of two kinds: regular type driven by friction pulley against head of winder spindle; drum type similar to that used on twisters. Other improvements are a tension device which acts directly on the thread, closed end stands, new chain drive, and less floor space.



Glass-Lined Dye Kettles

James Hunter Machine Co., North Adams, Mass., has introduced a glass-lined, corrosion-proof, steel dye kettle, which is designed to reduce cleaning time between colors and to enable the dyer to duplicate laboratory samples which are dyed in porcelain or glass. Another feature is that there are no welds which might be subject to corrosion.

Construction details of the dye kettle are as follows: the tank is fabricated of heavy steel and lined with glass which is chemically bonded to the steel; exterior surfaces of the tank are coated with corrosion-resisting metal; the main reel is made of white porcelain in either the slat or hump type; the whip roll can be either glass-covered steel or porcelain; splashes and baffles constructed of stainless metal; roller bearings throughout; drive may be either standard pulley or individual motor, variable-speed drive being furnished when desired.

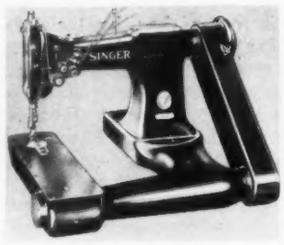
Predicts Yarn Evenness

A pocket-size sliding-disk calculator has been developed by United States Testing Co., Hoboken, N. J., for predicting the multiple-thread evenness likely to result from any 9-meter evenness degree in the raw silk. The disk is turned until the raw-silk evenness is read in the upper slot; then the corresponding multiple-thread evenness is visible in the lower slot. Figures for the latter cover a range from 2-thread to 7-thread, and appear in either red or black—the former color indicating a multiple-thread evenness unsuitable for producing satisfactory stockings and the latter indicating a suitable evenness. Because no definite recommendations as to what multiple-thread evenness is necessary to produce a satisfactory hose have been established, it is pointed out that the indication made on this point by the calculator should be used by each mill merely as a guide for setting its own standards.

In each case the seriplane grade is shown below the 9-meter evenness degree for reference purposes, although it is emphasized that no direct comparison should be made between the two figures. Also shown in the upper slot are the evenness averages for 160 panels and 40 low panels and the cleanness and neatness figures.

Feed-Off-The-Arm Lockstitch Machine

A lockstitch, feed-off-the-arm machine, said to be the only machine of this type, has been introduced by the Singer Sewing Machine Co., Singer Bldg., New York. This equipment has been designed especially for lap-seam felling on underwear, uniforms and khaki clothing, pajamas, men's shirts, and other tubular work of any length. It has an operating speed of 4,000 r.p.m., and is ball-bearing constructed for quick acceleration and smooth operation. An important feature of this machine is the automatic lubrication system. Parts subject to wear operate in a bath of oil, eliminating the need for frequent oiling or the dangers of neglect, as the reservoirs require filling only once a week. The construction is such that the oil cannot leak and soil the work.



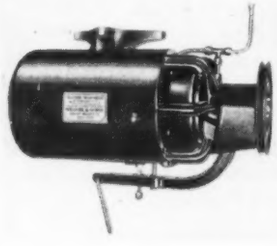
The manufacturers have developed a new type of stitch regulator for this machine, which they say assures a positive stitch length at all speeds. The operator's comfort also has received consideration. The machine is operated from a normal position, with unobstructed vision and ample clearance for the work.

Crack-Filling Material

A new patching material, known as "Stonehard Wallseal," has been brought out by Stonehard Co., 401 N. Broad St., Philadelphia. The principal claim made for the compound is that it contains a chemical which expands to compensate for the evaporation of water, and that, consequently, the material will not shrink after being applied. Wallseal comes in powder form and is mixed with water to form a stiff paste. It dries about 20 min. after application.

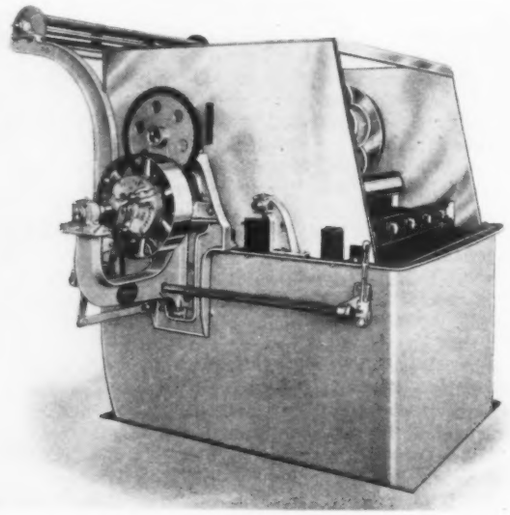
Electric Transmitter For Sewing Machines

An electric transmitter intended primarily for operation of individual industrial sewing machines, has been made available recently by Willcox &



Gibbs Sewing Machine Co., 658 Broadway, New York. The source of power is a Westinghouse ⅓-hp. motor, the units being available for all standard electrical circuits. The transmitter embodies the disk type of friction clutch, which was selected because of its smooth action. Cork is utilized as a friction material because of its smooth action, long life, friction qualities, and its resistance to oil. Driving and brake disks are of ample size, each disk having approximately 14 sq. in. of contact surface. These oversize disks are designed to promote long life and positive drive at full speed.

The driving member of the clutch is keyed to the motor armature shaft, but is free to slide endwise thereon. The freedom to slide endwise allows the motor to utilize its full power for driving the clutch,



there being no end thrust against the motor shaft. The clutch driving member carries two cork friction disks, one fastened to each side. Completely inclosing this driving member are two pressed-steel drums. When a foot treadle is depressed, pulling down the operating lever, a strong, flat, four-arm spring goes into action squeezing the two steel drums, which are connected to the pulley shaft, against the cork disks attached to driving member, thereby transmitting the power of the motor to the pulley shaft. When the foot treadle is released, a coil spring on the under side of the unit pulls up the operating lever, overcoming the action of the flat spring and stopping the rotation of pulley by applying pressure to a brake disk attached to the pulley shaft. However, the stopping of the sewing machine is not dependent upon the action of this coil spring. The operator may stop the machine as sharply as desired by a slight backward pressure on the foot treadle with the heel, a natural tendency with sewing-machine operators.

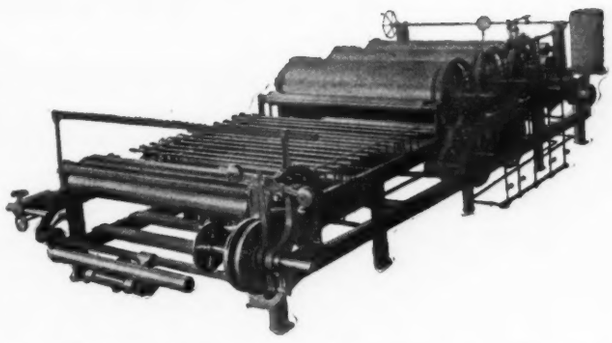
All rotating parts of the clutch and motor are completely guarded so that no oil will be thrown out on the operator or work. A complete range of pulleys, from 3 to 7 in. in diameter, varying by ½-in. is available, so that practically any machine speed may be obtained.

Improved Rayon Sizer

Important improvements in both silk- and cotton-system rayon sizers are announced by Charles B. Johnson, Paterson, N. J. One new feature is the elimination of cone pulleys and slip belts. It is now possible positively to predetermine and control stretch. This is accomplished by a new compensating drive which regulates the speed of the quetsch to conform with that of the drying cylinders. A quick-change gear box makes it possible to so regulate the tension that any desired percentage of stretch may be obtained. In place of the slip belts employed in former models of sizers, a friction disk drive has been introduced for the loom take-up. This is similar to the usual cotton-slasher drive, except that all parts revolve in ball bearings, which makes for more sensitive operation.

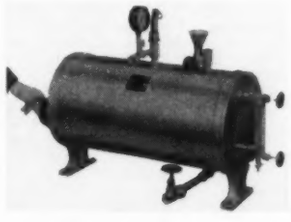
Another feature is the new main drive, which includes in one unit a motor, variable-speed transmission, and a slow-speed motion and a reversing motion. This drive is controlled from every important operating point of the machine. The slow-speed motion enables the operator to remove ringers or make other repairs without bringing the machine to a full stop. This slow motion is designed also to give just enough creep to the warp to prevent the size marks in the warp, backlash, and stickiness in weaving caused by a complete stop. The reverse motion permits running the warp back through the machine when desired.

Both the cotton and silk system sizers are now equipped with adjustable solution pans. With one movement of a lever, the pan may be dropped to the cleaning position and restored to the operating position similarly when cleaned. The cut marker may be quickly adjusted to mark the edge of any width goods and for any length of cut. This is standard equipment on the cotton-system machine, but is furnished only on request in the silk system machine. An electric predetermined counter, standard equipment on the cotton system sizer only, can be set to suit various length of goods required. This may be hooked up with a single light or bell or, if preferred, with a stop motion which will halt the machine when the desired yardage has been reached. The immersion roll used in the cotton-system sizer exclusively may be quickly raised and lowered by the operator. Use of change gears has eliminated necessity for building up and tearing down draw rolls in the cotton system sizer. The leak-proof steam glands, syphon drainage system, and three-roll, ball-bearing quetsch featured in older models are retained in the improved machines. All of the improved features noted above can be incorporated in models now in use.



Small Steam Generators

A line of miniature steam boilers, operated by electricity and capable of generating from 6 to 54 lb. of steam by weight per hour, has been announced by the Commonwealth Electric & Mfg. Co., 83 Boston St., Boston. With the largest unit capable of giving up to 300-lb.



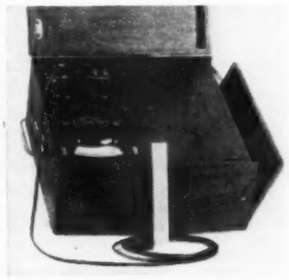
gage pressure, the line is designed for use in laboratories, for heating kettles, or for any other application where a relatively small amount of process steam is desired. A point emphasized by the manufacturer is that many plants require process steam in only small quantities and that use of the miniature boilers allows a complete shut-down of the main boilers during seasons when steam is not also required for heating.

Other features listed by the producer are: low cost of operation; miniature generator may be located where needed and may even be mounted on wheels to afford a portable boiler; amount of steam may be regulated in accordance with demand; no licensed attendant required; due to fact that there is no flame, fire hazard is decreased; three-heat switch for easy control.

Optional, extra devices include: automatic pressure control; automatic feed-water regulator; hand feed-water pump; injector valve for feeding; low-water cut-off.

Color Matching Device

A self-contained, portable device, designed primarily for the purpose of distinguishing the differences in color between any two specimens, has been developed by Hays Laboratories, Box 659, Pawtucket, R. I. Known as the "Telecolor" and making use of photo-electric cells, the device is also capable of distinguishing at what points of the visible spectrum the differences in color occur. When two specimens are placed in respective compartments, any



resultant difference can be read on a graduated scale. If it is desired, each specimen can be placed in the Telecolor separately and, with the aid of color filters, the values of each of the primary and secondary colors composing the total color can be read in either quantitative or qualitative values. The device plugs in on the ordinary electric light outlet.

Roll Clearer

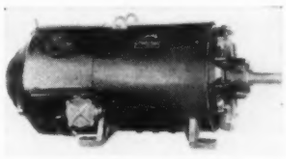
A. C. Lawrence Leather Co., Salem, Mass., has added to its line "Clearacot," a new roll-clearer for spinning mills. The product is made of virgin wool as it grows on the sheep; skin and wool being tanned together. The company asserts that the use of such clearers helps the spinning of better yarns, cleans the rolls better, and permits fewer nips and slugs. It is also stated that Clearacot will do as good a job when old as when new; that there are no torn cots at the pins; and that it wears well.

Full-Fashioned Attachments

A completely automatic welt turner for full-fashioned hosiery machines and also an automatic needle-and-point alignment device have been developed by the Hartford-Empire Co., Hartford, Conn. It is expected that full details will be released shortly.

Fan-Cooled, Explosion-Proof Motors

A line of d-c., fan-cooled, explosion-proof motors has been brought out by Louis Allis Co.,



Milwaukee, Wis. One of the features of the construction is that inspection of the commutator and brushes is made possible by the removal of three screw caps which are readily accessible.

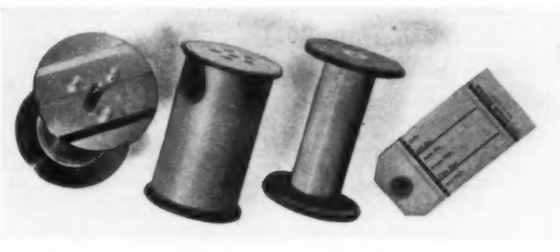
Portable Electric Drills

Skilsaw, Inc., Chicago, has added a line of portable electric drills. Features stressed include: ball-bearing construction; entire bodies of die-cast aluminum; new type switches; drive designed to give maximum power.

Multicolor Throwing Bobbins

A complete system for preserving the identity of lots of silk or rayon by means of color combinations on tags and bobbins has been developed by Clover Leaf Manufacturing Co., Honesdale, Pa. The tags are printed with the distinguishing color combinations in stripes at each side of the record spaces. Bobbins having heads of laminated vulcanized fiber or Bakelite have the laminations in different colors so arranged that the color combination on the tag is reproduced on the edge of the head. Metal heads show the colors in stripes on the outer surface.

The company is prepared to supply bobbins and tags in 225 different registered color combinations of red, black, and white alone, which means that a throwster can have a large number of silk or rayon lots going through his plant at one time all clearly identified at each process. The colors will prove beneficial to the weavers, also, as the shipping bobbins will identify both the lot and the throwster.



NEW PUBLICATIONS

Rayon and Synthetic Yarn Handbook, by E. W. K. Schwarz and H. R. Mauersberger; Rayon Publishing Co., New York; $3.00.

This book has been badly needed, at least in so far as it is a reference handbook combining the miscellaneous facts and figures which have been developed by various technicians in the rayon and rayon-textile fields. In addition to being a handbook, however, the new volume is something of a textbook for the novice or student and contains elementary descriptions of the four spinning processes and of throwing, weaving, knitting, etc. There is a brief chapter giving the history of rayon from its first conception by Hooke in 1664.

Particularly useful from the reference standpoint are the chapters on the physical and chemical properties of rayon; the constructions of rayon fabrics, conveniently tabulated; the dyestuffs and the dyeing and printing methods most suitable for rayon; the tentative specifications for tolerances and test methods (from American Society for Testing Materials); the proposed methods for rayon identification from American Association of Textile Chemists and Colorists); the trademarks and brand names for rayon and rayon articles (from Richards & Geier); the roster of rayon-producing companies throughout the world, and the bibliography of rayon books. Of special merit is the chapter on the economic and statistical background of the rayon industry by Stanley B. Hunt, of Tubize-Chatillon Corp.

The book is orderly and systematically arranged and is provided with an adequate index—something which always commends a technical book to us. Throughout the volume an effort has been made to keep the discourse simple and easily understandable to the layman, without injuring its value to the technician.

Handbook of NRA, edited by Lewis Mayers; Federal Codes, Inc., New York; $6.50; in combination with Supplement Service, $10.00.

This, the second edition of this valuable book, contains a wealth of new material. In fact, of its 868 pages, only approximately 250 appeared in the old book. The codes of 25 major industries are given in full and the remainder in summary form. The book proper is made up primarily of the vast body of basic executive orders, regulations, administrative rulings, and judicial decisions which form, in effect, a part of each of the hundreds of codes. The semi-monthly supplement service, called the NRA Reporter, keeps the volume up to date.

Reports on Mechanical Power Transmission from Motor Drive to Industry; by Robert Drake; Published by American Leather Belting Association, New York.

This publication discusses the transmission by belting and other means of mechanical power from the electric motor to the driven machine. The treatment is in the form of 50 reports which discuss the problems under a wide range of conditions and applications of mechanical power transmission from the standpoint of design, trouble elimination, comparative production, and comparative costs. The author purposely avoids the so-called logical order of presentation typical of college text books, but takes up first those problems which he believes most need consideration under present conditions. Also he maintains throughout the reports the pragmatic viewpoint — what works under ordinary mill conditions is right; what gives trouble is no good.

About 18,000 copies of the book, which was financed by subscription from 35 manufacturers of leather belting and mechanical power transmission equipment, have been distributed to plant superintendents, master mechanics, plant engineers, and consulting engineers; the remaining 7,000 copies of the first edition can be secured for 25c. each.

Study of the Raw Cotton and the Yarn and Sheeting Manufactured From Three Grades of American Upland Cotton; Superintendent of Documents, Washington, D. C. Price 10c.

This report of an investigation made by the Bureau of Agricultural Economics and the Bureau of Home Economics in cooperation with Clemson Agricultural College compares the tensile strength, durability, and certain other properties of yarns and fabrics made from good-middling, middling, and strict-good-ordinary grades of Texas cotton. Results of tests are detailed, which indicate that the tensile strength of yarns and the bursting strength and resistance to laundering of sheeting made from the good-middling and middling cottons were about equal, and in every case were greater than those manufactured from the strict-good-ordinary grade.

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Business Literature

Single-Unit Hosiery. Karl Lieberknecht, Inc., Reading, Pa. Illustrated booklet describing the Kalio "Complet" single-unit full-fashioned hosiery machine as sold by the Louis Hirsch Textile Machines, Inc., New York.

Dyers. James Hunter Machine Co., North Adams, Mass. Folder illustrating the various types of dryers manufactured by the company.

Knitting Defects. Textile Machine Works. March-April issue of the Reading Record containing article dealing with sinker breakage.

Air Conditioning. Sturtevant Cooling & Air Conditioning Corp., Boston. Bulletin showing typical installations of air conditioning equipment in textile and other industries.

Hosiery Dryers. Paramount Textile Machinery Co., Chicago. Catalog describing various types of hosiery drying and finishing equipment manufactured by the company.

Chemicals. E. I. du Pont de Nemours & Co., R. & H. Chemicals Dept. Quarterly price lists for three months begun April 1.

Knitting Industry. Textile Machine Works, Reading, Pa. Annual folder analyzing happenings of the last year and charting the outstanding trends in the full-fashioned knitting industry.

Testing Machines. American Instrument Co., Inc., Washington. Bulletin describing two testing instruments, the "Compressometer" and the "Fabric Air Permeometer."

Silk & Rayon Machinery. Atwood Machine Co., Stonington, Conn. Catalog describing types of equipment manufactured by the company, with emphasis placed on the fact that all Atwood machines are now oilless.

Belting. J. E. Rhodes & Sons, Philadelphia. Folder setting forth some of the features of the company's belting and leather products.

Fans. Propellair, Inc., Springfield, Ohio. Folder describing stream-lined fans as manufactured by the company.

Paints. Detroit Graphite Co. Bound, illustrated catalog describing mill whites and other paints used for the conservation of light, etc., together with charts and specifications.

Electric Heating Units. General Electric Co., Catalog of electric heating units and devices, together with various charts, etc.

Nickle-Clad Steel. Lukens Steel Co., Coatesville, Pa. Booklet illustrating various uses for nickle-clad steel.

Power Transmission. Link-Belt Co., Chicago. General catalog covering the company's products for the mechanical conveying and preparation of materials, and for the transmission of power. List prices as of April 1 are given.

Industrial Scales. Kron Co., Bridgeport, Conn. Condensed catalog describing industrial dial scales manufactured by the company.

Power-Factor. General Electric Co. Booklet describing use of capacitators for improving power-factor.

Boiler Meters. Bailey Meter Co., Cleveland. Bulletin giving operating data on over 20 installations.

Drawing Machinery. Saco-Lowell Shops, 147 Milk St., Boston. Catalog of parts for sliver-lap and five-roll drawing frame.

Motors. The Louis Allis Co., Milwaukee, Wis. Bulletin describing polyphase squirrel cage motors of various types.

Sheaves. Allis-Chalmers Mfg. Co., Milwaukee, Wis. Circular showing "Texsteel" sheaves for Texrope drives.

BUSINESS NEWS

Royersford Needle Works, Inc., Royersford, Pa., has announced the appointment of **Louis Hirsch Textile Machines, Inc.,** as special representatives in addition to its present sales organization.

Warren (R. I.) Textile Machinery & Supply Co., a new concern, has purchased the property of the Warren Mfg. Co., closed for four years, and will manufacture a line of reeds, roll coverings, etc.

Hinde & Dauch Paper Co., Sandusky, Ohio, has announced that W. B. Van Wagner, formerly of the Louisville office, has joined the company's representatives in the Carolinas, with headquarters at Winston Salem, N.C. The move is due to the increased requirements of the textile industry in the district.

Homestead Valve Co., Coraopolis, Pa., announces the following new exclusive representatives for Homestead valves: Grinnell Co., 240 Worth Highland Avenue, Atlanta, Ga.; L. E. Livingston 2012 Ward Parkway, Fort Worth, Texas; National Supply Company, Toledo, Ohio.

Solvay Sales Corp. has moved its Philadelphia office to 12 South Twelfth St.

Timken Roller Bearing Co. has moved its Pittsburgh office to 414 North Craig St.

James Talcott, Inc., New York, announce that Norborne P. Gatling, formerly vice-president of the Chatham & Pheonix National Bank & Trust Co., has joined the organization as manager of the sales department, and that Frank J. Kelly has been advanced to the position of assistant secretary.

American Chain Co. is stressing the fact that the packaging of a large part of Acco chains sold through hardware stores is with cotton; that this use consumes hundreds of bales of cotton annually; and that this is a form of reciprocity with those southern cotton farmers who use El-Wel-Tratrace chains or other products of American Chain Co.

Combustion Engineering Co., Inc., New York, has announced the appointment of H. S. Colby as general sales manager.

United States Testing Co. has elected D. E. Douty, former vice-president and general manager, as its president. Mr. Douty succeeds Emil J. Stehli, president since 1914, who becomes chairman of the board. United States Testing Co. has opened a new department to test silk for hosiery mills at its Hoboken plant to handle silk purchased in the New York market and at its Chicago branch for direct silk shipment and western mills. Special services offered to hosiery mills include complete silk grading, nine-meter evenness determinations, suggestions for obtaining best results and the handling of rejections and replacements. Testing facilities have been greatly expanded to take care of the increase in this work.

E. F. Houghton & Co., Philadelphia, Pa., announces the opening of two new offices in the South. The Charlotte, N. C., offices have been moved to 1410 First National Bank Building, and will have jurisdiction over the following representatives: J. A. Brittain, Birmingham, Ala.; J. E. Davidson, Richmond, Va.; J. M. Keith, Greensboro, N. C.; R. J. Maxwell, Atlanta, Ga.; D. O. Wylie, Charlotte, N. C. A new office also is being opened at 1708 Masonic Temple, New Orleans, La., out of which will work J. W. Byrnes and Byron E. Dodd. H. J. Waldron is southern sales manager.

J. D. Lutes has been appointed southern sales manager of clipse Textile Devices Co., Elmira, N. Y., with headquarters in Charlotte, N. C.

Abbott Machine Co., Wilton, N. H., has appointed L. S. Ligon as southern representative for its winding machinery with headquarters in Greenville, S. C. Mr. Ligon was formerly with the Barber-Colman Co. and recently with the Hygrolit Corp. He is succeeding A. S. Thomas of Greenville, who retires due to poor health.

Cocker Machine & Foundry Co., Gastonia, N. C., has sold to the J. & P. Coats Co., Paisley, Scotland, a large order of textile machinery. It will require two months to build equipment and E. K. Whitener, of the Cocker Company will be sent to Scotland to supervise its installation.

Seydel Chemical Co. has appointed J. M. Brown as southern sales representative with headquarters in Charlotte, N.C.

Rhode Island Tool Co., Providence, R. I., is celebrating its one hundredth anniversary. The interesting folder announcing this fact indicates that Jeremiah O. and Joseph Arnold founded the company which now covers five acres of floor space, when they began making bolts and nuts in a small water power plant on the Mosshassuck River in 1834.

Inventions Digest, Inc., Chicago, Ill., has been established to collect descriptions of recent inventions from patent attorneys and report news of these inventions to manufacturers who subscribe to the service. Subsequent negotiations for sale or licensing are handled direct between the manufacturer and the inventor's attorney. Elsworth Keith is vice-president of Inventions Digest.

Amthor Testing Instrument Co., manufacturers of speed recorders and testing instruments for paper, cordage and light metals, has moved from 309 Johnson St. to 4-10 Leo Place, Brooklyn, N. Y.

Textile World Analyst

TREND TOWARD RECESSION IN ACTIVITY AND PRICES

First Quarter Activity High: Textile mill activity for the first quarter of 1934, based on consumption of raw materials, was 10% higher than that for the similar period of last year. In fact, it was the highest first-quarter rate since 1930. March, the last month for which there are statistics available at this writing, was 10% above the preceding month, and 14½% above the corresponding month last year. It was the most active March since 1929.

THE net result of April in the textile markets was a definite trend toward recession. This was noticeable in both activity and prices.

Consequently, as the month closed, there were either actual or proposed plans for curtailment, accompanied by uncertainty as to values. Official April statistics of fiber consumption in most branches of the industry are not available at this writing. Silk is an exception, and in this case deliveries to American mills last month were the lowest for any month this year. This was reflected in the decision to shut down all mills for a week.

On the matter of price, the month of April brought the first general decline in TEXTILE WORLD'S price index numbers since the upward trend started in March, 1933. Some individual items showed losses at certain times during the period in question, but the general list kept on advancing.

Raw cotton at 128 represented a loss of four index points in April and thus marred its record of having shown a gain every single month since the low of 48 in February, 1933. Raw wool, which acted uncertainly in March, turned definitely downward during April and ended the month with a net loss of five points. At 147, however, it is still almost double the March, 1933, figure of 75. Raw silk continues to sulk and is only four points higher than it was when the low point of 26 established in February, 1933.

Manufacturing margins on carded cotton fabrics and yarns, shown in Tables I and II respectively, dropped sharply. The average fabric margin for April was 17.6c. against 18.3c. in March, but at the end of the month (April) the figure was 16.7c. Similarly, the April yarn average was 15.9c. against 16.8c. in March, with the end-April figure down to 15.0c.

None of these facts is in itself alarming. Nor is the total of them, except to those who have been living in a fool's Paradise and who may have imagined that the time has been reached when textile recessions are no more.

We have expressed, elsewhere in this issue, our impression that there may be more than a seasonal slump this summer, followed by sharp resumption of recovery in the fall. While many in the industry share this opinion, there are others who feel that confidence will be restored by certain moves now under way in Washington and that the summer movement will be upward. We cannot subscribe to that view.

We borrow from an economist whose opinion is usually sound:

"The purpose here is not to paint too painful a picture of late summer but to urge mental preparedness for a let-down in activity. Exact measurement of the let-down is hard, if not impossible, to give at this time. Nor is it well to be greatly alarmed by the let-down, because it will not mean an end to recovery *as a trend.* The best guess at the moment is that business will stage a very gratifying advance in the fourth quarter. . . . .

"There is a strong under-current of conviction that no matter what happens this summer, recovery will be resumed afterward and the ultimate victory over depression will be won. This is merely psychology, but often psychology plays a big rôle in the basic trends of trade. *Caution about the nearer future but confidence in the longer future is the key-note,* and, according to the best lights of this analysis, it is believed to fit the facts of the case reasonably well."

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	15.3	July, 1933.....	23.4
October, 1931..	13.3	August, 1933...	21.4
January, 1932..	12.1	September, 1933	19.5
June, 1932.....	9.5	October, 1933...	19.1
July, 1932.....	9.1	November, 1933	17.7
August, 1932..	11.1	December, 1933	17.6
September, 1932	13.0	January, 1934..	18.4
October, 1932..	12.6	February, 1934.	19.1
November, 1932	10.7	March, 1934...	18.3
December, 1932	10.6	April, 1934.....	17.6
January, 1933..	10.4	Apr. 4.....	17.8
February, 1933.	10.1	Apr. 11.....	17.9
March, 1933...	10.2	Apr. 18.....	18.1
April, 1933.....	11.4	Apr. 25.....	17.4
May, 1933.....	15.6	May 2.....	16.7
June, 1933.....	20.6		

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	12.6	July, 1933.....	23.2
October, 1931..	12.7	August, 1933...	23.5
January, 1932..	10.9	September, 1933	21.3
June, 1932.....	9.9	October, 1933...	20.0
July, 1932.....	9.6	November, 1933	18.4
August, 1932...	9.7	December, 1933	18.5
September,1932	12.8	January, 1934..	18.3
October, 1932..	12.3	February, 1934	16.5
November,1932	11.3	March, 1934...	16.8
December, 1932	10.9	April, 1934.....	15.9
January, 1933..	10.2	Apr. 4.....	16.0
February, 1933.	9.4	Apr. 11.....	16.1
March, 1933....	9.8	Apr. 18.....	16.0
April, 1933.....	10.1	Apr. 25.....	16.3
May, 1933.....	12.3	May 2.....	15.0
June, 1933.....	15.4		

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Textile World's Price Index Numbers

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index: Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
1925, average..	187	188	189	176	223	229	224	233	143
1926, " ..	140	155	157	149	184	189	179	207	136
1927, " ..	140	153	159	153	181	184	187	195	119
1928, " ..	160	162	162	166	199	202	199	197	110
1929, " ..	153	144	145	167	176	179	192	211	108
1930, " ..	108	125	123	144	127	139	161	202	179
1931, " ..	68	93	92	119	99	112	134	161	54
1932, " ..	51	76	73	100	78	97	115	128	34
1933, " ..	84	116	110	113	116	135	139	181	35
Jan. 1933.....	50	72	67	100	76	85	105	125	29
Feb. 1933.....	48	68	65	95	75	83	102	125	26
Mar. 1933.....	49	70	66	96	75	84	102	125	26
Apr. 1933.....	56	74	72	97	78	90	104	125	29
May 1933.....	69	93	94	101	104	113	116	169	34
June 1933.....	76	109	117	112	122	139	135	192	47
July 1933.....	86	138	135	131	134	153	156	201	50
Aug. 1933.....	110	170	151	147	136	157	159	217	41
Sept. 1933.....	111	156	149	147	144	177	165	222	41
Oct. 1933.....	110	152	141	144	148	179	175	222	36
Nov. 1933.....	114	146	132	144	150	179	175	222	33
Dec. 1933.....	115	146	131	144	152	179	177	222	32
Jan. 1934.....	124	151	139	144	153	180	181	222	32
Feb. 1934.....	132	148	146	144	153	180	181	222	34
Mar. 1934.....	132	149	145	142	152	178	180	209	31
Apr. 1934.....	128	144	141	141	147	176	180	209	30

Note: All cotton indices since Aug. 1 include processing tax.

TEXTILE WORLD'S

Cotton Digest

THE presidency of a major trade association always involves hard work. During the last year, the responsibilities of such an office have been multiplied many times.

Only the members of the Cotton Textile Code Authority can fully appreciate the burden which the NRA and AAA—to mention only two agencies—have placed upon the presidents of the American Cotton Manufacturers Association and the National Association of Cotton Manufacturers.

Upon his retirement last month as head of the former organization, Thomas M. Marchant must have derived compensation from the thought that he has made a major contribution to the industry to which he has devoted his business life. That thought is ample reward for a man of Mr. Marchant's type.

Fortunately for the industry, his successor, William D. Anderson, has long since earned his spurs. We have heard him called affectionately "the old war-horse." He can pick up at once, where Mr. Marchant left off, the struggle to make the cotton industry a permanently profitable field in which to work.

—*Editor.*

May Curtail Mills 25%

The Cotton Textile Code Authority has been canvassing all manufacturers operating under the Code to determine the attitude toward a reduction in operations of 25% throughout the industry for a period of 60 to 90 days. Decision will doubtless have been made by the time this issue reaches its readers.

During the last few weeks there has been a falling off in demand for cotton textiles which has been more than seasonal, which has been attributed to the following factors:

1. Lack of buying confidence particularly in the heavy industries consuming cotton for industrial uses.
2. Labor difficulties in several important consumer industries with resultant suspension of operations.
3. The lack of a compensating tax on certain fibers that compete directly with cotton which is carrying a processing tax amounting to approximately $10,000,000 monthly.
4. Increasing encroachment upon domestic markets by imports from Japan and certain European countries.
5. A tremendous decrease in cotton textile export business which the industry is making every effort to regain.

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Heads Cloth Group

Thomas M. Marchant, president of Victor-Monaghan Co., Greenville, S. C., was elected chairman of the print cloth group of cotton manufacturers, at a meeting held in that city May 5. He succeeds W. D. Anderson, of Bibb Mfg. Co., Macon, Ga. No action was taken at that time with regard to curtailment although the situation was discussed. Mills on twills and sateens were admitted to membership in the group. W. D. Anderson was chosen to confer at Washington May 14 on reconciling the various codes affecting the print cloth industry.

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Trading Slow on Cotton Goods Mart

April opened with slow trading in the cotton goods markets. Narrow print cloths and sheetings were generally unchanged.

Improving conditions were noted in the early part of the month, buyers being brought into the market by the threat of a shorter work-week.

The month closed with trading still quiet because of the uncertainty over the legislative situation in Washington. Prices on some print cloths, sheetings and broadcloths dropped ⅛c., but the decline was not general.

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April Yarn Sales Show Small Total

April yarn sales showed a much smaller total than March, but April shipments made a favorable showing as compared with previous months. Better demand during the latter part of the month was accredited to the attractiveness of the prices of ordinary quality carded weaving and knitting yarns.

Spinners of combed peeler and high-break carded yarns are booking as little business as possible at present rates which they regard as unattractive.

Pleasure and Business at Sea Island Meeting

Howard Coffin who presided at Sea Island meeting of Southeastern Cottons, Inc.

Eighty textile executives and members of their families assembled at the Cloister, Sea Island, Ga., April 27 to 29 for the annual spring meeting of Southeastern Cottons, Inc. In addition to regular semi-annual business meeting, an elaborate program of entertainment was provided. New code rulings and pending legislation as well as future policies of the company were discussed, and the annual report was read at the meeting, which was presided over by Howard Coffin, chairman of the board. This is the third meeting of Southeastern Cottons at Sea Island.

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Bankhead Cotton Bill Signed by President

The Bankhead Cotton bill, after having been fought back and forth between the House and Senate for weeks, was signed April 21 by President Roosevelt. As last month's issue went to press, the bill stood hedged with innumerable amendments, added by the Senate. Since that time, most of the Senate amendments were eliminated in conference, leaving the bill practically as it was upon leaving the House.

That is: Allotments will be based, as originally called for, upon a five-year (1928-1932) period; cotton sold in excess of growers' allotments will be taxed 50% of the current market value at the time of sale, but not less than 5c. a pound; growers raising only six bales will not be exempt from the tax; penalties for violation will be heavier than called for in Senate amendment.

The reduction entailed by the quota of 10,000,000 bales, is approximately 31% of the base production for the last five years. State allotments, in the final form, are sligthly less than listed on this page last month. The Bureau of Internal Revenue will have the duty of collecting the tax on cotton which has no exception certificate.

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Amoskeag Strike Status

Despite action by the Cotton Textile National Industrial Relations Board granting wage increases of 5 to 10% on certain classifications of labor at Amoskeag Mfg. Co., Manchester, N. H., a strike was called and the plant was shut down for three days. Workers returned on May 10.

Moves Sales Offices to Philadelphia

Sales headquarters of Standard-Coosa-Thatcher Co. were moved on May 15 from Chattanooga to offices in the Lafayette Building, Philadelphia, Pa. R. J. Mathewson is sales manager.

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Current Statistics

Statistics of particular interest to cotton manufacturers, showing March operations and the raw material situation were:

Spindle activity	102.9% capacity, or 7,720,217,745 spindle hours
Cotton consumed	543,690 bales
Cotton imported for consumption	18,665 bales
Cotton exported (excluding linters)	550,104 bales
Cotton ginned (March 20 report)	13,043,110 bales

February figures for comparison:

Spindle activity	101.5% capacity, or 6,692,120,318 spindle hours
Cotton consumed	477,890 bales
Cotton imported for consumption	13,575 bales
Cotton exported (excluding linters)	628,457 bales

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N. C. State College Has Annual Style Show

North Carolina State College textile students staged their 7th annual cotton style show and 15th annual textile exposition on April 26. Over 100 young women, representing North Carolina colleges, modeled a variety of costumes made by themselves from fabrics designed and manufactured by the textile students. Winner of the grand prize was Miss Elizabeth Lewis, a student at Meredith College. The fabric was cravanetted gingham woven by F. A. Thomas, Jr. and M. A. Rhyne.

Following the style show, the textile department was opened to the public and methods of weaving, spinning and finishing were demonstrated by the students. G. T. Gardner, textile student, presided over the day's activities as "general superintendent," assisted by W. A. Blackwood.

Miss Lewis, winner of grand prize

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Cotton Mill News

Cotton Mill Products Co., Mobile, Ala., is building a brick addition, 30x80 ft., to house one-process picking.

Bibb Mfg. Co., Macon, Ga., is repairing an old engine room on Main Street, which will cost approximately $4,400.

Kendall Co., Boston, has purchased the mill of the **Holmes Mfg. Co.,** New Bedford, Mass., idle for the last three years, and will begin operations as soon as necessary machinery can be installed and a local operating organization formed. The present mill has 64,520 spinning spindles. The Kendall Co. will install looms and operate as a weaving mill. At the start only a portion of the present spindles will be operated. About 250 employees will be required at first. General Cotton Corp., has sold to the Kendall Co. 800 Draper automatic looms formerly in Nashawena Mills, which it is understood will be installed in the Holmes plant. Formal completion of transfer will not take place till end of May.

Forrest, Inc., Gloucester City, N. J., has been chartered by Henry C. Forrest, and associates, with capital of $100,000, to operate a local mill for manufacture of cotton goods. H. L. Forrest, Gloucester City, is interested in new company.

American Mfg. Co., Brooklyn, N. Y., has plans for alterations and improvements in four-story mill, reported to cost $20,000. William Higginson & Son, New York, are architects.

Bert W. Varley and associates plan to establish and operate a cotton textile mill at 329 S. Main St., Jamestown, N. Y.

International Looms, Inc., 23 East Twenty-first St., New York, have leased space in the Waverly Terminal, Elizabeth, N. J., totaling about 30,000 sq.ft., and will equip for new branch mill for production of tapestries, damasks, etc.

Efird Mfg. Co., Albemarle, N. C., is constructing three new cotton storage warehouses 60x112 ft. each.

Wiscasset Mills Co., Albemarle, N. C., replaced 35,000 spindles with Whitin long draft equipment.

Gaston Yarn Mills, Cherryville, N. C., has been purchased and will be operated by **John A. Baugh, Jr.,** formerly agent and **O. G. Morehead** formerly superintendent of Loray plant, Manville-Jenckes Corp., Gastonia, N. C.

Altavista Mills, Inc., were chartered April 11, at Burlington, N. C., to carry on the business of textile manufacture with $100,000 authorized capital and $300 subscribed by W. S. Coulter, L. C. Allen and Eva Burke Clapp.

Erwin Cotton Mills Co., Cooleemee, N. C., is replacing old equipment with approximately 43,000 Saco-Lowell long draft spindles. Old drawing frames are being replaced with new Saco-Lowell machines.

Claytex Mills, Inc., has purchased the Clayton (N. C.) Cotton Mill, which it has operated under lease for the last two years. R. L. Huffines, Jr., is president; McDonald Dixon, vice-president. The company now has five plants on yarns.

Loray Mills, Gastonia, N. C., has 609 new Draper looms, recently installed, in full operation.

Proximity Mfg. Co., Greensboro, N. C., is replacing all old equipment in the Proximity plant with Abbott circulating cone-winders.

Caldwell Cotton Mill Co., Hudson, N. C., has begun an improvement program at mill, including installation of spinning and carding machinery and accessories, replacing present equipment.

Cannon Mills Co., Kannapolis, N. C., at its recent annual meeting reported the expenditure of $1,500,000 on new machinery for its various plants during the last operating year.

Hudson Cotton Mfg. Co., Inc., Lenoir, N. C., has begun installation of new machinery, being the first step taken in making a complete change in the mechanical set-up of the plant, according to B. B. Hayes. Most of the old equipment dates back to 1904. The battery of 24 spinning frames are being replaced first, and some time during the summer months, cards will be replaced.

Boger & Crawford Spinning Mill, Lincolnton, N. C., is building a 100x75 ft. brick and steel warehouse addition.

Pee Dee Mfg. Co. No. 1, Rockingham, N. C., is erecting a new office building.

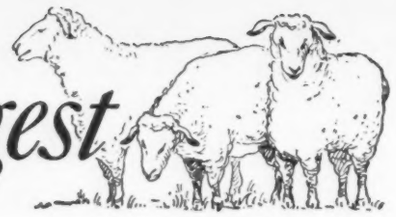
Spencer Corp., Spindale, N. C.—L. C. Carpenter, treasurer, has been appointed receiver for this company.

Cape Fear Mfg. Co., Inc., St. Pauls, N. C., has been chartered with capital of $100,000 and $15,000 stock subscribed by J. M. Butler, F. R. Keith, Spurgeon Kinlaw and others.

Springs Cotton Mills, Nos. 1 and 2, Fort Mill, S. C., are planning to equip 150 additional looms with individual electric motors. F. B. Electric Co., Chester, S. C., is rearranging the lighting system of these plants.

TEXTILE WORLD'S

Wool Digest



IN the wider discussion which naturally attends the promulgation of rules of practice and merchandising for the piece goods division of the wool textile industry, the importance of the similar rules for the commission combers' group and the sales-yarn division must not be overlooked.

A study of the detailed provisions developed for each of these two groups will reveal the tremendous amount of work, and the inevitable ironing-out of differences, which must have gone into their preparation.

For years, the best thought of men in these divisions of the industry has been directed toward the seemingly impossible task of securing uniform and sound practice. Now, the impossible has become possible.

The future is not all easy going. Individuals must live up to, and the groups must enforce, these rules. But the important thing is that a start has been made.—*Editor.*

Period of Readjustment in Market

The wool goods market has been less forward in talking higher prices since the middle of April. With the raw material easier and with cut price sales of spring clothing already started in retail circles there is less basis for higher values than might have been guessed at the end of March. However the possibility of higher wages and still shorter hours still hovers in the offing. If these materialize the consumer will get further cuts in quality as the only way to make both ends meet unless raw wool itself recedes further than it gives promise of doing at the moment.

Possible benefits to well made and styled manipulated goods are obvious. Even before the situation was fully disclosed, the success of a large cotton mill in entering the field of cotton-warp worsteds had been cause for considerable comment. The turning of more cotton machinery to this field only awaits a little surer evidence that the market for cheap clothing is really a sound one.

The trade practice rules which have just gone into effect in wool goods have loosed a flood of queries for details. Especially the f.o.b. provision is irking those who object to figuring out shipping costs for every lot of goods despatched. Some want flat or average rates set up. Another stumbling block is "signed copy of order," which means that the buyer sends in an order on his own form, that the seller must make out an equivalent on his own form (this must have the uniform provisions printed on the back) and send it to the buyer for him to sign again before the order is in effect. Objection to the terms 1% 10 days, net 60 has come from the cloak and suit trade which had previously enjoyed 2% 10 days, 60 extra.

All in all it is a time of readjustment and a quiet period is likely to ensue while buyers in effect take a short position on the market and while sellers figure out the details of their code responsibilities. Worsted mills are running out of orders and shutting down, while woolen mills keep along at a fair pace.

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Rules for Combers and Sales Yarn

Among the rules of trade practice now in effect in the wool textile industry under its code are those for commission combers and for the sales yarn division. A digest follows:

The combers' rules provide for filing with National Association of Wool Manufacturers of schedules of minimum combing charges which may be changed at any time. Weekly statistics are also required on number of combs operated, average hours per comb and production. Uniform contract form is outlined which among other things must provide: no rebates; excess combing not to exceed 20% more than contract; transportation at buyer's expense; weights of tops on 15% regain basis; terms, prompt cash within 10 days; noils and waste, two months free storage; comber to have general lien on all goods received; arbitration of differences.

The sales yarn rules provide for uniform sales contract including among other items: not subject to cancellation except for failure to deliver; not liable for late or non-delivery due to causes beyond seller's control; no claims on short weight, count variation, etc., allowed after 10 days from receipt; no rebates; order subject to credit limit or withdrawal at any time by seller; buyer liable for loss due to cancellation or failure to specify; prices on undelivered portions subject to increase or decrease due to governmental action; arbitration, if on weight or moisture, by U. S. Testing Co., if on quality, by Philadelphia Textile School or Lowell Textile Institute, other controversies by industry's panel or American Arbitration Association; weights on 15% regain for French spun and 13% for Bradford spun and merino; oil content Bradford spun not to exceed 4%.

Terms on weaving yarns are 2% 10 days, net 60; anticipation at not more than 6% per annum and additional time at not more than 6%; shipments f.o.b. or if prepaid to be charged to customer. On knitting yarns terms are 3% 10 days, or 2% 10 days, 60 extra, net 71 days.

Sellers shall report orders, cancellations, weekly production and weekly shipments. Dates for specification against unspecified orders must be stated, all to be complete within four months from date of order. Spinners cannot carry yarn stock greater than one-sixth previous calendar year's production unless approved by Sub-Code Authority. That authority may suspend portions of the rules to permit competition with jobbers or others not subject to the rules.

Rules of practice for topmakers were approved by NRA on May 5.

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Top Futures Decline

Wool top futures dropped well below the $1.00 mark late in April for the first time in a number of months. Loss for the month was about 8c. Spot tops at Boston dropped 3c. during the month going from $1.11 to $1.08. Trading in top futures became more active at the lower prices toward the close of April.

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Rags Fairly Steady

Wool rags hold fairly firm though quiet. It is an expected between seasons period for them since their best market comes in with development of heavyweight fabric lines. Reworked wool is still so much lower than virgin wool that slight weakness in the latter has not had much effect except on neglected descriptions or substandard lots. It is not easy to obtain fancy knits below 12½c.; blue serges are at 12 to 13c. and mixed softs at 13c. White knits fetch 40c.

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Wool Prices Decline

Wools continued their decline throughout April and ended the month at the lows of the year, with particular weakness in fleece wools which registered a loss for the month of 3c. per grease pound. Demand for wool throughout the month was unusually small and afforded no support to prices. However, a pleasant surprise came to dealers on the appearance of the Government wool report for March which indicated that the use of foreign and domestic clothing and combing wools made a gain over February of 752,000 lb., and even more surprising still that the consumption for the first quarter showed a gain of 988,000 lb. clean over the first quarter of 1933.

The woolen division of manufacturing from the consumption standpoint gave way to worsteds in March, using 107,000 lb. less of clean wool while the worsted division increased its use over February by 859,000 lb. The showing is as follows:

	Combing	Carding
March	8,219,000	4,608,000
February	7,360,000	4,715,000

Growers in the range States are holding for stiff prices. The idea of strong values for wool is in the back of their minds and the prices that they ask are so high that dealers refuse to meet them.

If the growers maintain this attitude, it seems likely that the great part of the territory wool clip will be consigned. The case is quite different in fleece wools. These wools are not connected in any way with Government financing so that it has been less difficult for dealers and growers to come together.

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Besse Opposes Flexible Tariff

Arthur Besse, chairman wool textile industry code authority, appeared before the Committee on Finance, U. S. Senate, to oppose the bill on reciprocal tariff agreements. He stated at the start that he was not speaking for a high or for a low tariff, but merely about the bill under consideration. He opposed it on the following grounds: (1) Because there is no provision for hearings before action on tariff rates may be taken; (2) because business will be adversely affected due to uncertainty on future tariff rates; (3) because no corrections are possible in event errors of judgment are made since the modified rates would be part of treaties; (4) because no provision is made to preserve the fundamental protective purpose of the American tariff; (5) because the bill cannot accomplish its purpose since it is based on an incorrect economic theory.

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No Limit for Upholstery Mill Spindles?

Collins & Aikman, having asked for a stay of the ruling that all spinning of worsted and/or mohair yarn by the upholstery and drapery textile industry must come under the Wool Textile Industry's code, were granted the stay and given a hearing in Washington on May 7. The basic code for the upholstery and drapery industry makes no mention of spinning but limits weaving to two shifts of 40 hours each.

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A 9-Minute Meeting

Stockholders of American Woolen Co. at the postponed annual meeting in Springfield, Mass., April 24, approved the cancellation of 13,333 shares of preferred stock, previously purchased in the open market for retirement at an average cost of $23.54 a share. This action completes the retirement of approximately 100,000 shares of preferred stock and reduces the amount of preferred stock authorized and outstanding to 399,815 shares. Officers were reelected. The meeting lasted nine minutes.

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U. T. W. Sluggish on Cleveland Decision

The National Labor Board after hearing both sides on the Cleveland (Ohio) Worsted Mills Co. strike ruled on April 26 that an election should be held by the workers in August under the Cleveland Regional Labor Board to elect representatives for collective bargaining and that the strike should be called off under an agreement tentatively reached by both parties. The employees had previously voted in February in favor of an employee representation plan which was for a six month term. The tentative agreement referred to virtually maintains the present status quo. Up to May 3 the United Textile Workers group had not decided whether to accept the National Board's ruling. The second ballot favored a return to work and production was resumed.

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Activity of Industry

Current statistics on wool consumption and mill activity follow, the activity percentage being based on single 40 hour shift, 5½ days per week:

Wool consumed:	March	February
Total clean equivalent (excluding carpet)	12,827,000	12,075,000
Carpet wool (grease)	8,330,000	7,697,000
Activity machinery:		
Looms (50" and wider)	81.0%	91.4%
Carpet looms	52.7%	53.0%
Combs	74.6%	84.8%
Worsted spindles	53.3%	63.4%
Woolen spindles	94.4%	103.1%

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Wool Goods Market News

The New York office of the National Association of Wool Manufacturers has been moved to the twelfth floor of 386 Fourth Ave. That is also the office of the industry's Code Authority.

Textile Color Card Association has issued advance swatches to members on fall woolen colors. The collection of 46 colors features new interpretations of brown.

United Textile Workers Union representatives have laid a 6-point program before the National Association of Wool Manufacturers involving wage minima for different occupations, standard machine loads and a 35-hour week. The union is pressing its membership drives in the Lawrence and Passaic areas.

Because of gaining interest in cotton-wool mixtures, it has been suggested that a joint meeting of cotton and wool textile code authorities be held to discuss the status of these mixed fabrics.

A general meeting of all wool goods salesmen to hear an interpretation by an authority of the Code provisions has been suggested.

International Statistical Bureau sets 3,154,692,000 lb. as world wool output for current season, a drop of 6½% from last season.

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Wool Mill News

Riverside Woolen Co., Thompson, Conn., is a new corporation with authorized capital of $45,000, of which $6,000 is paid in. Arthur Kruck, William E. Backus and Howard E. Cady, all of Mystic, Conn., are incorporators.

Indiana State Reformatory, Anderson, Ind., is planning establishment of a woolen mill at institution, with equipment to give employment to about 60 operatives. The project has been authorized by State officials at Indianapolis. Equipment of **Tell City (Ind.) Woolen Mills** has been purchased and will be moved to the reformatory. Michael Bettinger, head of the Tell City company will buy equipment to manufacture a new product at his plant.

Charles River Garnetting Mills, Inc., Boston, Mass., A. L. Norton, 184 Summer St., treasurer, recently organized with capital of $10,000, are said to have concluded arrangements for acquisition of mill at Waltham, Mass.

Mayo Woolen Mills, Millbury, Mass., will shortly be reopened according to plans in the hands of the Millbury Improvement Society.

Bigelow-Sanford Carpet Co. and **Mohawk Carpet Mills,** Amsterdam, N. Y., have announced a 10% wage advance affecting several thousand employees.

C. J. Bachner Co., Inc., Gloversville, N. Y., has been chartered by Clemens J. Bachner, 143 Prospect Ave., Gloversville, and associates, with capital of $100,000, to operate a local mill on woolen goods.

Felters Co., Johnson City, N. Y., has plans for new two-story addition to local mill, totaling about 40,000 sq.ft. floor space. A. W. Bowie, Binghamton, N. Y., is architect and engineer.

Densten Felt & Hair Co., Philadelphia, Pa., has let general contract to Kessler-Wurster Co., for new one-story addition to mill, to be used primarily for storage and distribution, reported to cost about $18,000.

Sandy Lake (Pa.) Woolen Mill, J. M. Schaeffer, proprietor, operating 1 set of cards, 1 loom, 234 spindles and dyeing equipment, and therefore perhaps the smallest complete woolen mill in the country, was recently destroyed by fire. Plans for rebuilding are being considered.

Dominion Woolens & Worsteds, Ltd., Peterboro, Ont., soon begins construction of new one-story addition, 80x100 ft., estimated to cost close to $40,000, with equipment.

TEXTILE WORLD'S

Rayon Digest

THE code of the rayon yarn producing industry contains no limitation on machine operation. Consequently, during periods of slackened demand, price-cutting in an attempt to continue to run full, is entirely in order.

Several times in pre-NRA days, such a situation was disastrous in its effect upon the producers and mill-consumers of synthetic fibers. As we write this, it is too early to judge whether or not the latest price development will have such a result.

Nevertheless we are convinced that, if we were a rayon yarn manufacturer, we would much prefer to operate under a code containing a machine-operation limitation clause similar in purpose to that in the cotton textile code. We realize, of course, that individual machines must operate continuously but there could be a limit on the percentage of machines to be operated —such limit to be adjusted currently to the state of demand.

By the way, we hope the boys in Washington have been watching the "unanimity" of the rayon manufacturers on the matter of prices.—*Editor.*

Industrial Cuts Price, Blames Silk

After eight months of rayon stability a reduction in the price of viscose process yarns which seemed likely to become general, was precipitated on April 24, when the Industrial Rayon Corp. announced a reduction of 10c. on most numbers, bringing 150 denier down from 65c. to 55c. Knitted fabric prices were reduced in proportion. The price cut was made public by Hiram S. Rivitz, president of Industrial, in a lengthy statement which reviewed developments in the rayon industry since the advent of the N.R.A. Mr. Rivitz said the cut was necessitated by downward trend of raw silk and acetate yarn levels; he stressed the importance of capacity production and volume sales in the industry, asserting that failure to cut prices would reduce sales which in turn would increase costs. He expressed confidence that the lower prices would help restore strength in the market by making for steadier operation of plants.

The reduction was largely unexpected in the market, though there had been some thought of such action at the time of the acetate yarn cut. It excited considerable resentment among yarn producers. L. A. Yerkes, president of DuPont Rayon Co., announced that this firm's prices on weaving yarns would stand as is, and knitting yarn prices would be quoted on request; Mr. Yerkes added, "the kindest thing to say about Mr. Rivitz and his statement is nothing." S. R. Fuller, president of American Bemberg Corp., expressed disagreement with Mr. Rivitz' claim that a price cut was necessary, adding that "stability was the most needed condition now."

In spite of Mr. Yerkes' assertion that his company would not reduce its weaving yarn prices, there was a strong feeling among yarn producers that the industry would be compelled to meet the competition of Industrial. It was pointed out that the technical difference between weaving and knitting yarns is so minor that in many cases knitting yarns could be used for woven fabrics.

The new price list of Industrial, which became effective April 25, follows:

Yarn Prices

Denier	50	75	100	100	125	150	150	200	250	300	450
Filament	14	20	28	40	34	40	60	40	60	60	60
Premier—											
Bleached skeins, 1st	..	$0.90	$0.75	$0.75	$0.62	$0.52	$0.57	$0.50	$0.50	$0.45	$0.45
Bleached skeins, 2d	..	.87	.72	.72	.60	.50	.55	.48	.48	.43	.43
Unbleached cones, 1st	..	.95	.80	.80	.65	.55	.60	.50	.56	.45	.45
Spun-Lo—											
Bleached skeins, 1st	..	.95	.80	.80	.67	.57	.62	.55	.55	.50	.50
Bleached skeins, 2d	..	.92	.77	.77	.65	.55	.60	.53	.53	.48	.48
Unbleached cones, 1st	$1.35	1.00	.85	.85	.70	.60	.65	.55	.55	.50	.50
Dul-Tone—											
Unbleached cones, 1st	1.35	1.00	.85	.85	.70	.60	.65	.55	.55	.50	.50

Cloth Prices

150 denier premier cloth	$0.67
150 denier dul-tone cloth	.72
150 denier spun-lo cloth	.77

Rayon Hearings May 15, 17

The hearing on charges of monopolistic practices made against 10 rayon yarn companies, which was originally scheduled for May 1, in Washington was postponed to May 15, the Federal Trade Commission has announced. The hearing will be held at 10 a.m. in the Federal Trade Commission Building, Washington. Counsel representing the Commission will take testimony regarding the allegations. A second hearing, originally scheduled for May 3, in New York City, has been postponed until May 17.

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Viscose Co. Strike Cuts Yarn Output

Concern that a general strike in the rayon yarn industry might follow the walk-out of 8,200 workers at the Marcus Hook and Lewistown, Pa., plants of the Viscose Co., which occurred April 13, was dissipated April 27, with the report that a complete accord had been effected between the Viscose Co. and spokesmen for the United Textile Workers of America, which was conducting the strike. It was later made known that the settlement terms included a wage raise and union recognition, but not acceptance of the closed shop principle. The specific causes of the strike as stated by union leaders, were the introduction of an objectionable work schedule at Lewistown and the refusal of the Marcus Hook management to equalize the machine load.

Following the Viscose walk-out, it was reported that strikes in plants of other companies were imminent. While the union was concentrating much of its effort on organizing the employees at the Hopewell, Va., plant of the Tubize Chatillon Corp., this company on April 19 announced a general wage increase. On May 6 the Viscose Co. raised wages 9% at its Parkersburg, W. Va., plant.

When the strike had been on about two weeks conferences were arranged between the Viscose Co. representatives and the union officers through the Philadelphia Regional Labor Board as

The NRA Eagle as woven by students of Bradford Durfee Textile School of colored rayon yarn

Hats are being made of dull-luster Chardonize. The fabric is porous and cool and the shape is adaptable to the current summer vogue

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intermediary, and the aforesaid agreement was worked out, subject to ratification.

At the time of these negotiations the Viscose situation was as follows: All units in Lewistown and Marcus Hook were closed; viscose solution was drained from lines and tanks, and spinning machinery was dismantled. With regard to the prospect of these plants reopening, it was pointed out that even after resumption of operations, it would be some weeks before the equipment could get into full production. The Viscose Co. plants at Parkersburg, W. Va., Roanoke, Va., and Meadville, Pa., were not affected by the walk-out. The normal capacity output of viscose yarn by the Viscose Co. is about 35,000,000 lb. annually, and this has been cut in half by the strike.

•

Weavers' Yarn Stocks

Seeking to ascertain the stock position of rayon weavers as regards a possible yarn shortage due to the Viscose Co. strike, the National Rayon Weavers Association made a survey of yarn supplies in hands of weaving mills. Results of the study, announced April 20 by C. Whitney Dall, secretary-treasurer of the association, showed that yarn in mills totals 8,466,012 lb., comprising 7,767,584 lb. of viscose process yarn and 698,028 lb. of acetate. These stocks are in hands of mills which have 45,000 looms out of a total of about 50,000 for the industry.

•

Many Woes Give Trade "A Headache"

Market outlook in the rayon yarn industry at the opening of May was more confused than it has been in many months. Buyers had not yet adjusted themselves to the possibility that the Viscose Co. strike might cause a shortage of viscose process yarns, when the Industrial Rayon Corp. announced its price cut, occasioning a new and widespread uncertainty.

The first market reaction to the strike was a feeling that it might bring a scarcity of pigmented yarns, since this is the chief output of the Viscose Co.'s Marcus Hook plant; indeed, this company is now taking such orders on a very limited scale; other producers, however, report active call. Buying was steady in mid-April due partly to the shortage scare, and partly to the price strength which followed the walk-out. The Industrial company's price cut, on the other hand, served to reduce buying entirely to emergency commitments.

One well-known factor at the end of April characterized the whole situation as "a big headache" and that might be taken to express the views of buyers and sellers alike.

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Confer on Sizing

With the aim of gathering opinion to help toward developing standardized practice in the sizing of rayon and cotton warps, a hearing is being held by the U. S. Institute for Textile Research, Inc., at the Hotel Commodore, New York, N. Y., May 11. The meeting, which is open to general discussion of the subject, starts at 10 a.m., and is followed by a luncheon.

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Pull—and It's Open!

A new packaging method which eliminates strings and opens by pull-flaps, has been introduced into the yarn industry by the American Enka Corp. The package has two wrappings; the outer wrapping is completely sealed and a flap projects; when the flap is pulled the bundle opens, revealing an inner wrapping which is secured by four straps; from each strap a flap projects and when these are pulled the bundle is completely open. The method is patented and is stated to afford full protection against soiling of the skeins.

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Tennessee-Eastman Gets Award for T. W. Ad.

Tennessee Eastman Corp., Kingsport, Tenn., was awarded honorable mention for the best photograph appearing in trade paper advertising at the annual exhibit of advertising art, held in Rockefeller Center, New York, this month. The advertisement which won the award appeared in the April, 1933, issue of TEXTILE WORLD.

Rayon Mill News

Belamose Corp, Rocky Hill, Conn., has revised its capital structure. The company has authorized $600,000 8% preferred, par $100; and 600,000 shares of no par common. This takes the place of previous four classes of stock.

College Throwsters of Haydenville, Inc., Williamsburg, Mass., is a new corporation formed to operate as a subsidiary of **College Weavers, Inc.,** Northampton, Mass. Raymond L. Bishop is president and Howard J. Van Arsdall, 100 Milk St., Boston, Mass., treasurer and representative. A company known as **College Throwsters, Inc.,** was reported formed in July, 1933, and in January, 1934, report was made of the formation of **Hampshire Throwsters, Inc.,** at Haydenville, both also subsidiaries of **College Weavers.**

Greensboro (N. C.) Weaving Co., will erect a rayon mill there at a cost of approximately $70,000.

North American Rayon Corp., Knoxville, Tenn., has been granted a charter of incorporation. The authorized capital is $10,000. Incorporators: Robert L. Cookingham, Frank C. Taylor and Kendall Williams.

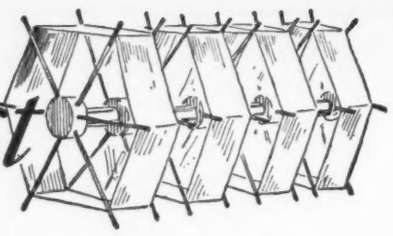
Industrial Rayon Corp., Cleveland, Ohio, is arranging for increase in capital from 200,000 to 1,200,000 shares of stock of which 600,000 shares are to be issued 3 for 1 for the present shares. Portion of the remainder may be used for construction of proposed new rayon mill, recently reported in these columns, for which site will be definitely settled in near future. The company's net profit for the first quarter of 1934 was $672,307, compared with $229,376 for the first quarter of 1933. Stockholders meeting is called for May 18 to approve the proposed capital increase.

DuPont Rayon Co., New York, N. Y., has begun foundations for initial buildings for new operating units at mill at Ampthill, near Richmond, Va., to be equipped for about 50% advance in present production. The program will necessitate relocation of municipal wharves and railroad classification yards, and is estimated to cost about $5,000,000 with machinery. DuPont Rayon Co. has also broken ground for a new Acele unit at Waynesboro, Va. Approximately 350 additional operatives will be added to the payroll, it is said.

Tubize-Chatillon Corp., Hopewell, Va., reports net earnings for the first quarter of 1934 of $236,363, against $35,000 in same period for 1933.

TEXTILE WORLD'S

Silk Digest



DRASTIC curtailment, such as the complete shut-down of the silk industry for one week, is not pleasant. It is to be hoped that some day, balance between production and demand will be provided so automatically by budgetary control that this type of action will not be necessary.

Pending the achievement of that almost perfect state, however, there is nothing else to do in the face of serious over-production such as confronts this particular industry. Certainly, there is no percentage in permitting a market to degenerate without doing anything about it.

Incidentally, attention might be drawn to one section of the curtailment order: "This order is NOT a request. It is a law. It is just as much a part of the code as if it were written into the code itself." . . . Those are harsh words, but true ones. —*Editor.*

All Silk Mills Close May 14-21

A complete shutdown of all mills operating under the silk textile code, from May 14 to May 21, was ordered by the Silk Textile Code Authority on May 2. The order affected about 900 mills operating 70,000 looms and employing approximately 30,000 workers. In the curtailment order, which stated that "this is not a request—it is a law," Peter Van Horn, chairman of the Code Authority, said the step was taken on insistent demand of "an overwhelming majority of the industry," and was made necessary by serious over-production in all divisions. Drastically reduced selling-prices forced the industry "most reluctantly" to take this step, he added. The order applies to the following groups: Broad fabrics, dress fabrics, underwear fabrics, special and tie fabrics.

The order was issued two weeks after the hearing at Washington on the proposed sixteen amendments to the silk code. This hearing, which was held April 18 before Deputy Administrator F. S. Blanchard, was attended by a large delegation of silk trade leaders and representatives of other groups, including labor. Discussion centered on the amendments which would determine "reasonable cost" of production, provide standard sales contracts and restrict installation of new machinery. Approval of the machinery restriction clause appeared to be general. John R. McGinley, of the Phillipsburg (N. J.) Silk Co., in urging this change, argued that, since the present annual capacity of looms is 800,000,000 yards, any increase in loomage would be "an economic waste."

Modification of other proposed amendments was asked. The definition of productive machinery was opposed by David L. Cole, representing the Silk Manufacturers Association, Paterson, N. J., as incomplete because it omitted winders, warpers, coppers and quillers. Speaking for neckwear manufacturers, Leopold Lerner asked that existing selling terms under the code be changed to 7-10 E.O.M. or 6-10-60 E.O.M.

Other speakers at the hearing included Mr. Van Horn, who presented the amendments; K. B. Blake, Cheney Bros.; E. C. Geier, Duplan Silk Corp.; Col. W. W. Metcalf, Portland Silk Co.; Oscar A. Goedecke, Oscar A. Goedecke & Sons, Inc.

It was announced April 28 that Lucius D. Tompkins, of the U. S. Rubber Co., would succeed Lucius R. Eastman as Administrative member of the Silk Textile Code Authority.

•

Output Control Aim of New Study

A study of silk and rayon fabric problems, centering on the need for a policy of production control, is being conducted by a committee of twelve leaders of the industry. The committee represents three main groups, the silk textile weavers, the rayon weavers and the converters. Members include Wm. Klopman, of Burlington Mills; C. Whitney Dall, of the National Rayon Weavers Association; Thomas B. Hill, president of Greyco Sales Corp.; Ward Cheney, of Cheney Bros.; Howard Veit, of M. Lowenstein & Sons, and Louis Lazare, of Duplex Silk Mills.

•

Decisive Drop In Fabric Sales

Sales of gray and finished goods by 60% of the mills operating under the silk textile code have declined 25.4% in the first half of April against the preceding half month and were 33.9% below the same period last year, it is reported by the Statistical Bureau of the National Federation of Textiles, Inc. The Bureau states that of 32,929,060 yards, which was the total gray stock on hand unsold April 15, 47.5% was in silk fabrics, 46.0% in rayon and other synthetics, and 6.5% in other fabrics. Total unsold finished goods aggregated 32,231,987 yards, comprising 36.9% silks, 30.5% rayons and other synthetics, 16.5% printed fabrics and 16.1% other fabrics. Total stock on hand April 15 for all groups was about 1.2% below total stock of March 31, 1934.

•

New Measurement Rule

The following standard method of measuring silk and rayon fabrics was made public to the industry April 22, in a ruling issued by Peter Van Horn, chairman of the Silk Textile Code Authority:

"A standard method of measurement consists of laying out the merchandise on a flat table not less than five yards in length, the edge of the goods to run straight with the edge of the table, without folds, the measurement to be made by any usual accurate method. A piece of goods not less than 60 yards in length shall be used for each test."

•

Throwsters' Code Changes Approved

Changes in the throwing industry code, including a provision for assessing the individual members of the industry for costs of code administration, have been approved by the National Recovery Administration, it has been announced by Dean Hill, secretary of the Throwsters Research Institute. Mr. Hill also made known that the cost plan for the industry had been approved, and that the open price agreement was now in effect. He said that the open price agreement, which required throwsters to file their prices with the Code Authority, was meeting with very satisfactory response in the industry.

The month brought one change in the Code Authority for the industry, Robert F. Duncan, vice-president of the John Price Jones Corp. of New York, being named Administration member to succeed A. Henry Thurston, resigned.

•

Ishiguro to Head Japanese Bureau

T. Ishiguro, newly appointed successor to Seiji Yoshida, as manager of the Raw Silk Intelligence Bureau of the Japanese Government at New York, will sail from Japan about the middle of this month, and is expected to assume his new duties early in June. Mr. Yoshida, who directed the affairs of the

Bureau for a year, left for Japan at the end of April to assume a new position with the Raw Silk Sericultural Division of the Department of Agriculture of the Japanese Government.

•

Raw Silk Takes New 10c Slide

Indifferent demand together with the reduction in viscose process rayon yarn prices served to bring further weakening in raw silk prices this month. At the end of April, crack double extra 13/15 white 78% was selling at $1.32½, against $1.42½ a month previous, a drop of 10c. Importers found little real interest among their outlets; hosiery manufacturers placed more business than broadsilk weavers, some of the former covering until the end of the year. These advance orders were few and small, however, and most commitments from hosiery mills were for immediate delivery.

The silk promotional campaign has not helped the market materially as yet, but importers said it was still too early t olook for aid from that source.

Changes in the silk drive policy were looked for, following the resignation May 8 of Ernest L. Starr as managing director of the International Silk Guild, and the appointment of R. B. Jenkins, a public relations counsel, as his successor. Mr. Starr said he resigned because curtailment of available funds had seriously restricted his activities.

•

Chiffon Call Favors Florals

With the spring print season at an end, broadsilk market interests centers this month on the summer chiffons. Cutters are placing fair-sized orders, though occasionally they bring pressure for concessions. Price tone is less satisfactory than a month ago, due to increased stocks. The surplus appears to be limited to the lower-priced weighted silks, however; manufacturers still can get list price for the pure dye numbers.

At the retail end, the outlook is more promising. Active reordering of spring and early summer prints was reported as late as May 1, and numerous preliminary orders for printed chiffons have been placed. The sheers are most popular in the large and medium-sized florals.

A few firms are showing fall fabrics, but generally speaking the season has not yet opened.

•

Fabrics Portray History of Silk

"The Evolution of Silk" was depicted in dramatic fashion in a series of seven fabric designs which were draped on living models at an unusual fashion show held at Central Park Casino, New York, N. Y. The event, which featured fabrics portraying silk in all stages of the fiber's development, was held first on April 19 and again April 27, both showings being attended by representative groups of stylists, manufacturers, designers and retailers. The event was sponsored by Goldstein-Wilkins Corp., silk manufacturers, to introduce the new designs which were created by Brodsky, the Russian designer.

•

Imports at Year's High

Imports of raw silk during April represent the high point of any month this year, but are considerably below April, 1933, according to figures of the National Federation of Textiles, Inc. April, 1934, imports totaled 35,647 bales, or 5,487 bales less than April, 1933. Approximate deliveries to domestic mills in April, 1934, were 37,392 bales, compared with 44,080 bales for March, 1934 and 41,910 bales for April, 1933.

•

Raw Silk Water Rate Now 4c per lb.

The month brought both good and bad news as regards raw silk transportation rates. Steamship rates on all lines except the State Steamship Co. have been reduced 2c. per lb., making the rate 4c. per lb. from Yokohama to the Atlantic seaboard; the change is retroactive to March 31. Announcement to this effect was made by J. J. Fennessy, director of the Traffic Bureau of the National Federation of Textiles, Inc., who also announced later in the month that the new rate of 4c. per lb. on overland silk trains will not apply to ten Southern States, where the rate will continue to be 6c. per lb. until Dec. 31, 1934, when the old 9c. rate will be resumed. These States are: Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North and South Carolina, Tennesse and Virginia.

•

Rush Conference Plans

Plans to expedite the holding of the Third International Technical Raw Silk Conference are now under way, it was announced by the National Federation of Textiles, Inc.

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Silk Mill News

Herman & A. A. Baum, Marlboro, N. H., manufacturers of garment labels, lost heavily when fire burned their plant April 6. Included in the loss were 36 German-type looms valued at $2,500 each.

Henry Doherty Silk Co., plant at Clifton, N. J., in receivership was sold at auction March 5 to the Stanlo Corp. The Veeanday Corp., New York, was the only creditor holding mortgage and notes. It is understood that the plant has been dismantled.

Hudson Woven Label Co., West New York, N. J., has been organized by officials formerly connected with the E. H. Kluge Weaving Co. and has taken over part of the plant, records, designs and other assets of the Kluge company. Operations will commence at 721 Hudson Ave., the location of the Kluge company. Albert Leer is superintendent and H. G. Knapp sales manager.

Strasburg (Va.) Silk Mills, Inc., headed by Lena Gluck, of New York, have been granted a charter of incorporation. Authorized capital stock is $15,000.

Lexington (N. C.) Silk Mills recently installed 72 new automatic silk looms, replacing old equipment.

I. B. Abrams, an official of **Hazelton Silk Co.,** Hazelton, Pa., is at head of project to organize a new company to establish and operate a silk mill at Nescopeck, Pa.

Silk Industries of Canada, Ltd., Actonvale, Que., is nearing completion of reorganization. Name of the company has been changed to **Acton Vale Silk Mills Ltd.,** and sales office has been opened at Montreal. P. P. Demers is president. At present the company has 94 looms in position.

Persian Ministry of Industry & Agriculture, Teheran, Persia, will receive tenders until June 5 for supplying all machinery and accessories for a silk spinning and weaving mill. Persian Legation, Washington, D. C., has details.

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Silk Financial Notes

Sidney Blumenthal & Co. reports net loss of $111,664 for first quarter of 1934 against loss of $267,499 in similar quarter a year ago.

Belding Heminway Co., reports net earnings for the first quarter of 1934 amounting to $159,087, equivalent to 34c. a share on common stock, and compares with $55,263 and 12c. for corresponding quarter of 1933.

TEXTILE WORLD'S

Knit Goods Digest

ON all sides, we heard this year's Knitting Arts Exhibition referred to as the "best ever." The attendance set a record; the new arrangement of the hall was excellent; the spirit manifested by both exhibitors and visitors was buoyant. The show can be hailed as an unqualified success.

Similarly the meetings held during the week were not of the perfunctory type. They were alive with action, reflecting the constructive job which the Hosiery Code Authority has done during the last year.—*Editor.*

Reading Contract Negotiations On

Conferences are now under way between representatives of the American Federation of Full-Fashioned Hosiery Workers and the Reading, Pa., mills, looking to renewal of the agreements enacted last year which are due to expire June 1. The manufacturers are conducting their negotiations through a small working committee, of which Hugo Hemmerich, of Berkshire Knitting Mills, is chairman. While neither side has indicated as yet what trend negotiations are taking, it is understood that the union representatives have asked several important changes in contract terms.

The vexing issue of the check-off is generally viewed as of major importance, and negotiations on this point are likely to be complicated, due to the fact that the employees' association members pay no dues and therefore find themselves in a different category from the union members.

Conferences proving ineffective up to April 30, the union formally notified the 40 mills in the Reading district that the contract would expire June 1, which action prevented an automatic renewal.

On May 2, it was announced that employee associations in Berkshire, Rosedale and Fedden Bros. mills had renewed the contract for six months.

•

"Snug" Underwear Prices May Rise

The possibility of a price rise on certain winter underwear lines within the next couple of months was being discussed in the market at the opening of May. Manufacturers said that the close-fitting types of women's garments known as "snug" lines, while selling well and expected to continue popular next season, are not a profitable line at present levels, due to the fact that they cost more to make. It was stated that the mills very soon will face the alternative of either economizing on manufacture of this line, or making a slight price advance.

•

Modify Returns Clause

Revision of the returns provision of the knitted outerwear code to meet criticism raised by the retail trade is being worked out by a sub-committee of the knitted outerwear code authority. It is understood that the clause which now bars all returns "except under circumstances to be defined by the Code Authority," will be modified to permit return of unworn garments within 30 days after receipt of merchandise. Bathing-suit manufacturers indicated that they will ask special consideration in the return clause, asserting that the returns problem has special complications in their division.

•

New Policy Helps Hosiery Tone

Hosiery market tone strengthened somewhat at the end of April as a reaction to the action of the Code Authority in setting a basic selling price. While it was still too soon to estimate the effect of the decision in specific terms, there was no question in the minds of trade leaders but that it already has been a helpful influence psychologically. Prices have been weaker during the last six weeks than at any time since the advent of the NRA, it was pointed out, and now, encouraged by the stand of the Code Authority, mills are less disposed to move their stocks at a sacrifice. Buyers, however, reported extensive chiseling.

Orders generally are hesitant; buyers show a disposition to hold off on any but fill-in commitments until they can fully digest the significance of the new six-point program of the Code Authority. Certain mills report a spirited interest in men's fall lines; women's and children's lines move uncertainly, but a decisive pick-up at this end is looked for once the Authority begins to enact its new policies.

•

Reopen Harriman Case

When removal of the Blue Eagle from the Harriman Hosiery Co., Harrimann, Tenn., was ordered April 20, by Administrator Hugh S. Johnson, most of the merchants of the town boycotted the Blue Eagle as protest against the action. Criticism of the Harriman decision was wired to Gen. Johnson, April 26, and he ordered a new inquiry into the case. The Harriman mills had been convicted of violating section 7a of the NIRA.

•

Seek Basic Price For Outerwear

A hearing on an amendment to the knitted outerwear code which would empower the Code Authority in an emergency to establish price minimums based on lowest "reasonable cost of manufacture" is being held May 12 before Deputy Administrator Blanchard, at Washington. The Code Authority asks the change with the aim of safeguarding the industry from destructive price-cutting.

•

More Full-Fashioned Go Direct to Retailer

Women's full-fashioned hosiery sold direct to retailers represents 45% of production of this line, according to statistics made public by the Textile Machine Works, Reading, Pa., in a new folder. These figures show that out of an aggregate output of 31,000,000 doz. prs., 14,043,000 doz prs. were sold direct to the retail trade. Goods sold direct to consumers totaled 620,000 doz., the report stated.

Respective channels of distribution for the total are given as follows:

	Doz.
Sold to Mill	1,426,000
Sold to Wholesale	2,480,000
Sold to Retail	14,043,000
Sold to Wholesale — Retail	11,284,000
Sold to Wholesale — Retail — Mill — Consumer	1,147,000
Sold to Consumer	620,000

•

Outerwear Active, Weather or Not!

While the late spring weather has acted as a deterrent, manufacturers of both swimsuits and summer sweater lines report a steady demand through April. Orders are small, but in many cases they make up in numbers what they lack in individual size. The bathing-suit market tone is especially firm, due to the lack of production in the Philadelphia area, where a strike has been on for some weeks. Sweater call in New York centers on sports models,

and both men's and women's lines are active. While most orders are for spot delivery, some mills are writing considerable June and July business.

•

A Major Operation

A difficult problem of code jurisdiction has been solved with the announcement that all cotton knitted outerwear made by underwear manufacturers will come under the underwear code and all production of woolen garments will come under the outerwear code. This arrangement was effected at a meeting of representatives of the knitted outerwear and the underwear industries. The underwear code will cover production of fleece-lined garments, cotton-ribbed garments and cotton outerwear made on Tompkins machines.

•

Outerwear Strike Costly

Officials of the Philadelphia Knitted Outerwear Association stated last month that various outerwear manufacturers whose mills have been tied up by the bathing-suit strike there were completing plans to move their mills to other localities. In one case a manufacturer has already moved to Phoenixville, Pa., and various other firms are arranging to take similar action. The strike has involved heavy losses to the outerwear industry in Philadelphia, orders having been shifted to mills in other cities.

•

Sales Still Exceed Hosiery Output

Figures on hosiery production and sales for January and February, as just announced by the Bureau of the Census of the Department of Commerce, indicate that the total orders continue to hold a healthy lead over total output. Key statistics in dozen pairs for 341 manufacturers representing 400 mills, of which eight reported no production in February follow:

	Knit	Orders Booked
February, 1934.....	5,508,728	6,760,272
January, 1934.....	4,387,516	5,941,917

•

Underwear Orders Gain in February

Continued strength in the statistical position of the knitted underwear industry in February as against January, is reflected in figures made public by the Bureau of the Census of the Department of Commerce. Key figures, in dozen pairs, for 408 manufacturers for February and 436 for January follow:

	Knit	New Orders During Month
aJnuary, 1934.....	1,429,337	2,352,951
February, 1934.....	1,518,614	3,442,330

Knitting Machine Activity
(by hours under code)

Week Ending	Total Machine Hours	Week Ending	Total Machine Hours
Jan. 27, 1934..	653,379	Feb. 10, 1934.	728,486
Feb. 3, 1934..	709,953	Feb. 17, 1934.	751,312

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Knitting Mill News

Wilshire Knitting Mills, Pasadena, Calif., has been sold by Arthur Asadourian to C. F. Hamill and A. C. Milliken. Concern will operate under same name on sweaters at new location at 1178 South Fair Oaks Ave. Mr. Hamill was previously with the Great Dane Knitting Mills.

Kevon Knitting Mills, Inc., Union City, N. J., have been formed with capital of 2,500 shares of stock, no par value, to operate a local mill. Samuel Spingarn, 415 Thirty-second St., Union City, is company representative.

Amsterdam (N. Y.) Hosiery Mfg Co. has taken possession of the old Van Brocklin & Stover mill where output will be increased. The firm recently purchased 50 new knitting machines.

Fashion Fabric Co., Fonda, N. Y., recently acquired by A. W. Schneider from H. W. Underwood, is to be moved to Argusville in the near future.

Kingston (N. Y.) Knitting Mills, Inc., have been formed by Robert B. Thomas. Douglaston, S. I., and associates, with capital of $30,000, to operate a mill at Kingston.

Hockfield Co., Durham, N. C., recently formed by Herman and Joseph Hockfield, both of Durham, with capital of $10,000, plans early operation of a local hosiery mill.

Martinat Hosiery Mills, East Valdese, N. C., are installing 50 additional knitting machines.

Greensboro (N. C.) Full Fashioned Hosiery Mill is erecting an addition and making other improvements at a cost of $3,000.

Elliott Knitting Mills, Hickory, N. C., are erecting an addition to their full-fashioned plant.

Lyerly Full-Fashioned Hosiery Mill, Hickory, N. C., is planning new one-story addition to mill, reported to cost about $15,000.

Paramount Hosiery Corp., High Point, N. C., recently organized with capital of $100,000, plans operation of local knitting mill. New company is headed by Charles Abraham and E. C. Dillon, both of High Point.

Brown Bros. Hosiery Mill, formerly at Hildebran, N. C., has been moved to Hickory, N. C., in the building formerly occupied by the **Stevens Hosiery Mill.**

Ragan Knitting Co., Thomasville, N. C., has plans for new two-story, brick addition, 26x76 ft., to be used primarily for storage and distribution. It is estimated to cost about $20,000. It is understood that general erection contract will be let to Roy Hill, Thomasville.

J. H. Kissinger Knitting Co., Millersburg, Pa., has plans for new addition to be used as a dye house. It will replace an existing frame structure. Cost about $20,000.

Germantown Knitted Fabrics Co., Philadelphia, Pa., has leased four-story building at Thirteenth and Hamilton Sts., and will occupy for new mill.

Onyx Knitting Mills, Philadelphia, is operating the Edward Mills, Manchester, N. H., as a branch plant. The latter plant took over the bathing suit business dropped by the New Hampshire Mills last February. Location is in one of the vacant Amoskeag mill buildings.

Appalachian Mills, Knoxville, Tenn., recently installed new machinery for the manufacture of two-piece bathing suits.

Roberts Hosiery Mills, Inc., Radford, Va., recently organized by H. T. Roberts and associates, have leased local one-story building for new knitting mill, and will soon begin installation of equipment for initial output of about 1,000 doz. pairs of hose per day.

Inspiration Hosiery Mills, Wytheville, Va., are installing 12 additional knitting machines.

Richmond Hosiery Co., London, Ont., has awarded the contract for a three-story brick and steel addition, 40x50 ft. Hyatt Brothers of London are the contractors.

British Knitwear Ltd., Simcoe, Ont., established eight years ago, has completed installation of considerable new machinery and equipment for the manufacture of new lines. More machines are on order.

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Knitting Financial Notes

Mock, Judson, Voehringer Co., Inc., reports net profit of $305,754 for 1933 against $87,240 in 1932.

Zimmerknit Co., Ltd., Hamilton, Ont., reports trading profit of $148,528 for 1933 against $52,255 in 1932.

Braeburn Knitting Mills, Inc., Philadelphia, Pa., has filed schedules in bankruptcy, showing assets of $21,829, and liabilities of $41,813.

Brown Durrell Co. reports net loss for 1933 of $95,261 compared with net loss of $486,038 in 1932.

Regent Knitting Mills, Ltd., reports net loss for 1933 of $34,300, against $81,708 for 1932.

TEXTILE WORLD'S

Processing Digest

ONE of the most noteworthy research projects made possible by allocations from the Textile Foundation and now being carried out by research associates of the American Association of Textile Chemists & Colorists is that on the carbonization of wool. Particularly were we impressed with the method of presentation of the recently published reports of the progress made in this investigation over a period of nearly two years. We have often wondered what possible use the average mill man could make of research reports couched in highly technical terms and redundant with chemical nomenclature. Therefore it was gratifying to see an interpretative résumé of the findings written in plain, straight-from-the-shoulder language readily comprehended by those textile manufacturers who do not possess a Ph. D. degree. Indispensable as graphs, charts, and tables may be to the complete understanding of any subject by the trained chemist or physicist, fully as important, in our opinion, is the translation of the reports into everyday English that he "who runs (the plant) may read."

Accordingly we compliment the A.A.T.C.C., and particularly the chairman of the sub-committee on carbonization, for the precedent they have set in crowning the two excellent research reports with a readable and instructive summary from which any mill man interested in wool processing cannot help but benefit.—*Editor.*

Approves Modification of Textile Processing Code

Modification of the code of fair competition for the textile processing industry to deal with the question of price and service charge cutting was approved on April 27 by Administrator Hugh S. Johnson. An amendment to the code provides that in the event of an emergency arising from destructive cutting of service charges or prices the code authority may establish the lowest reasonable cost of the service or product, as the case may be, in each division of the industry, this determination to be subject to the approval, disapproval or modification by the administrator. The selling of products or the rendering of service at rates below "reasonable cost" shall then be considered an unfair trade practice.

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A.A.T.C.C. Notes

At the spring meeting of Southeastern Section, American Association of Textile Chemists & Colorists, held April 21, in Columbus, Ga., Paul Seydel, of Atlanta, Ga., delivered an address on the "Chemical Composition of the Cotton Fiber." In addition was shown a moving picture illustrating the Sanforizing process.

A. R. Murphy, of the Dyestuff Mfg. Dept., E. I. duPont de Nemours & Co., Inc., spoke on "The Manufacture of Azo Dyestuffs and Their Application to Silk, Acetate, and Viscose." at a meeting of the New York Section, held on April 27.

•

Initiate New Type of Finishing-Plant Service

A new type of finishing-plant service, combining market solicitation with plant and chemical research, is offered by Carl F. Zoch, formerly sales manager for Joseph Bancroft & Sons Co.; and John T. Gibbons, formerly director of chemical and plant research for the same company. Under the name Zoch-Gibbons & Co., the new firm will specialize in the development and marketing of special fabrics and finishes which will be offered and confined to individual finishers. Offices are at 40 Worth St., New York.

•

Seek to Merge Silk, Rayon Codes

While effort by the recently formed Coordination Committee of synthetic fabric converters to effect a merger of the silk textile and woven rayon fabric codes, was understood to be still under way, no details have been disclosed by officers of the committee. The committee which represents about 50 converting organizations in New York and other centers, had originally aimed to achieve uniformity in code practices of selling groups. It is understood that the committee now believes the only real solution to the present confused situation is to combine the codes.

•

Silk Soaking for Direct Knitting

A new process of silk soaking used in the production of direct-running yarn for full-fashioned knitting was described by W. W. Bray, director textile research department, Procter & Gamble Co., at a meeting on April 20, of the Philadelphia Section of the American Association of Textile Chemists & Colorists. Advantages cited for this method, which makes use of flaked sodium cleate, together with a specially selected olive (or equivalent neats-foot) oil, include the following: (1) low cost to the throwster, (2) simplicity of formula, (3) gives accurate control of soaking operation; (4) makes backwinding and conditioning unnecessary, (5) gives excellent and consistent knitting; and (6) enables saving of time and expense to the knitter.

After discussing briefly the way in which the demand by the full-fashioned knitters for a direct-running silk has complicated the problems of the throwster, Mr. Bray outlined the results of a study of these problems conducted by his company. This investigation disclosed that it is necessary to lubricate the silk thoroughly to reduce friction on the throwing and knitting machines, and at the same time to so treat the silk as to give it pliability. The study showed further that soaking the raw silk in a properly prepared emulsion of neutral oil and soap gives the desired results. In this connection, Mr. Bray stated, in part, as follows:

To be satisfactory for lubricating silk, an emulsion must have two definite characteristics. The first requirement is that the oil particles must be fine enough and uniform enough to give a good distribution throughout the bath. The second requirement is the ability to break down at the desired rate and separate out on the silk. With a properly chosen soap it is a simple matter to prepare a soaking emulsion of the desired degree of stability to prevent separation before the silk is entered. Soap emulsions likewise resist immediate separation when the silk is entered because there is an excess of soap present. However, when the emulsified oil particles, each surrounded and protected by a thin film of soap have been distributed uniformly throughout the silk, due to the excellent wetting power of the excess soap, a slow reaction begins which gradually brings about an almost complete separation of the emulsion.

Theoretically, there are two ways of making the silk gum pliable. The method which is well understood and widely used obtains this result through absorption of moisture by the silk gum. With the gum in its normal state, this can be done only with difficulty, as by backwinding. However, it can be made far easier by treatment of the gum to break down its harshness, stiffness, and water resistance. A

partial result of such a treatment is a great increase in hygroscopicity or moisture-absorbing ability of the silk gum. The gum treatment, which effectively increases both wet and dry pliability of the silk is, in general, an alkaline action. Soap offers a controlled supply of alkalinity which, if the soap is carefully chosen, is of just the right intensity to produce the desired effect on the silk. The amount of conditioning or the degree of hygroscopicity produced in the silk seems to be directly proportional to the per cent of soap used.

The properties of a soap which make it desirable for use in silk soaking are five: (1) It must be highly soluble so that concentrated stock solutions can be prepared and kept liquid without separation of solid matter at low temperatures; (2) it must be an efficient oil emulsifier at low temperatures; (3) the soap should be unusually mild, liberating its alkalinity as slowly and to as low a degree as possible; (4) the soap itself should be as soft as possible so that after being absorbed by the silk and dried, it will soften the silk instead of drying to a hard, harsh film and make the thread stiffer; and (5) the soap should be resistant to oxidation so as to prevent the changes which develop rancidity and actually weaken the silk yarn.

It has been suggested that considerable impregnation of the silk gum and possibly of the inner silk fiber takes place during soaking. There is undoubtedly a considerable absorption of neutral oil. The effect of this oil absorption is possibly an internal lubrication tending toward greater pliability of the gum. Soap is absorbed probably in almost as many forms as it exists in the solution. The effects of the absorption of soap—aside from the conditioning of the gum and the hygroscopic effect—are a slight swelling of the fiber, a fatty type of lubrication and a slipperiness of surface which aids lubrication. The sorption of soap and oil applied in the proper proportions combines with the conditioning of the gum to give a desirable effect on the silk. It is not a difficult problem to adjust these two materials so as to produce a highly satisfactory direct-running silk.

The first step in making the emulsion is the preparation of a stock solution of soap containing 1 lb. of soap flakes per gallon of solution. The value of such a stock solution is that measurements of the soap can be made by volume to the soaking tub. The oil likewise can be measured in liquid form by volume, and should be added in a slow stream to the concentrated soap solution in the individual soaking tub. Vigorous stirring with a paddle or mechanical apparatus forms a fine emulsion at this point. With the concentrated emulsion formed, the addition of water to make up the full volume of the tub and to adjust the temperature, dilutes the emulsion to a usable concentration. When the water is all in, a vigorous stirring should be given to make the emulsion uniform. Then the silk should be added immediately or as soon as possible. Soaking made with such emulsions has been thoroughly examined for possible variations in take-up by the silk; and it can be confidently asserted that properly made soap-oil emulsions will give highly uniform soakings.

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Code Violations

Fines were imposed last month on two companies—the Radiance Piece Dye Works, Paterson, N. J.; and the Greenville (R. I.) Finishing Co., Inc.—for violations of textile codes to which each company had pleaded guilty in Federal courts on April 27. Charges against the New Jersey concern were that it violated the code for the rayon and silk dyeing and printing industry in operating machinery in excess of time approved by the code and that it employed its workers overtime. After Federal Judge Phillip Forman had imposed a fine of $1000 on the Radiance Piece Dye Works, U. S. District Attorney, Harlan Besson stated he is now convinced that NRA violators can be "successfully prosecuted."

The charge against the Greenville Finishing Co. was that it had operated 282 hr. in December, whereas under the code for the cotton finishing industry it should have operated only 240. Federal Judge Ira Letts ruled that the company was guilty in three counts (for operating on Dec. 27, 28, and 29) and imposed a fine of $500 on each count.

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Approves Code Authority for Textile Processing

Personnel of the code authority for the textile processing industry approved last month by National Recovery Administrator, Hugh S. Johnson is as follows: Walter I. Cook, Glenlyon Yarn Dye Works, Phillipsdale, R. I.; Ben Haber, Erie Dyeing & Processing Co., Cleveland, Ohio; H. E. Kenworthy, Cooper-Kenworthy, Inc., Providence, R. I.; Franklin P. Knipe, Walter E. Knipe & Sons, Inc., Philadelphia, Pa.; Royal Little, Franklin Rayon Corp., Providence, R. I.; Joseph Schmitz, Jr., Universal Dye Works, Philadelphia, Pa., and Stanley R. Stager, executive manager, National Textile Processors Guild, Inc., New York.

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Oppose Advertising Restriction

Possibility of conflict between the Code Authority of the Rayon and Silk Dyeing and Printing Industry and the Advertising Federation of America appeared likely this month over the decision of the former to eliminate customers' names from dyers' advertisements. The Code Authority adopted a resolution stipulating that no concern in the rayon and silk dyeing and printing industry shall mention the name of a customer, and Alfred Falk of the Advertising Federation indicated that his organization would oppose the resolution as "curtailing the freedom of merchandising presentation."

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Colgate-Palmolive-Peet Moves Headquarters

An important business migration has been completed recently with the removal of more than 250 employees of Colgate-Palmolive-Peet Co. from Chicago to Jersey City. Upon the decision of S. Bayard Colgate, president, that "increased efficiency in the management of the business, as well as savings in time and money" should result from moving the main offices of the corporation, a two-story addition was constructed at the Jersey City plant of the firm, and new offices made available.

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Processing Plant News

Joseph Bancroft & Sons Co., Wilmington, Del., has plans for new two-story brick and steel addition, for expansion in bleaching department. Cost about $20,000.

Lanett Bleachery & Dye Works, West Point, Ga., has installed a group of Rice, Barton & Fales printing machines to run for the most part on heavy goods for the clothing trade. Complementary equipment has also been installed. Two machines were started up early in May and a third will be put in operation before long.

Pacific Mills, Lawrence, Mass., are expanding their printing operations. Two machines were placed in operation in the middle of April and a few machines are to be added each week until 15 are running. The Lawrence print works were closed two years ago following which the company moved 12 of its total of 53 machines to its Lyman (S. C.) plant.

R. W. Bates Sales Co., New York, organized to specialize in dyeing and finishing pure dye silks and mixtures, will not operate a plant of its own at present but will utilize the facilities of the Valley Works of National Dyeing & Printing Co., Paterson, N. J.

Versen Yarn Processing & Dyeing Corp., Bronx, New York, N. Y., has been organized with capital of $20,000, by A. F. Versen and M. Berlinger, 839 Bryant Ave., to operate a local mill.

Abe Nail, formerly treasurer of the Shuford Hosiery Mills, Hickory, N. C., has established a new finishing plant on Twenty-fifth Street in the West Section of Hickory.

Gaston Processing & Mfg. Co., Gastonia, N. C., headed by J. A. Baugh, Jr., and O. G. Morehead, has succeeded the **Gaston Manufacturing Co.**

Franklin Process Co., Providence, R. I., has filed plans for new three-story addition to mill, 84x85 ft., for which general contract recently was let to Bowerman Brothers, 70 Bath St., and will proceed with superstructure at early date. It will cost over $40,000 with equipment.

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QUOTATIONS

At close of business, May 1, 1934

Prices cover average qualities unless otherwise stated.

Cotton Goods

	*May 1	*Apr. 2	1933 May 1
PRINT CLOTHS			
27 -in., 64x60, 7.60	4½	4⅞	2½
38½-in., 64x60, 5.35	6⅜	6¼	3½
39 -in., 68x72, 4.75	7⅛	7¼	3½
39 -in., 72x76, 4.25	8⅛	8¼	4⅛
39 -in., 80x80, 4.00	8¼	9⅛	4⅛
BROWN SHEETINGS			
36-in., 56x60, 4.00	7¼	8	4½
36-in., 48x48, 5.00	6½	6⅜	4⅛
37-in., 48x48, 4.00	6¾	7⅛	3¼
MISCELLANEOUS			
Drills, 37-in., 3 yd.	9½	9⅞	4⅞
Denims, 2.20	15½	16	9½
Tickings, 8 oz.	18	18½	11
Standard prints	7⅛	7⅛	6¼

*Tax included.

Cotton Waste

Peeler comber	13.50c
Peeler strip	12.25c
White spooler (single)	6.00c

Cotton Prices

Spot Cotton at:	May 1	Apr. 2	For Month High	For Month Low	1933 May 1
New York	10.75	12.15	12.30	10.90	8.25
New Orleans	10.85	12.11	12.23	10.98	8.00
Liverpool	5.85	Holiday	6.44	5.88	5.73

FLUCTUATIONS OF FUTURES

	Closed May 1	For Month High	For Month Low	Closed Apr. 2	Net Change
June	10.64	12.13	10.82	11.99	—1.35
July	10.74	12.19	10.92	12.05	—1.31
Aug	10.79	12.21	10.95	12.10	—1.31
Sept	10.85	12.24	11.08	12.15	—1.30
Oct	10.91	12.28	11.08	12.20	—1.29
Nov	10.96	12.33	11.18	12.25	—1.29
Dec	11.01	12.40	11.19	12.30	—1.29
Jan	11.06	12.42	11.24	12.35	—1.29
March	11.17	12.52	11.36	12.50	—1.33

AVERAGE PRICE JUNE-JULY SHIPMENT HARD WESTERN COTTON

	F.o.b. New England Middling	St. Middling
1⅛-in.	13.48	14.73
1 5/16-in.	14.73	16.48
1¼-in.	18.23	20.23

Based on July 10.73.

FOREIGN COTTONS

Alexandria Exchange, May 1	
July, Sak	14.69
June, Uppers	10.96
Shipment c.i.f. Boston (Tariff not included)	
Medium Sak	26.25
Medium Uppers	22.19
(By Anderson, Clayton & Co.)	
India Rough, Calcutta Camilla	11.25
China Tientsin No. 1	12.40

Quotations on cotton cloth and cotton yarn as given on this page include the cotton processing tax. Where figures for dates earlier than Aug. 1, 1933, are given for comparison, such figures of course do not include this tax.

Cotton Yarn (Nominal)

(Tax Added)

CARDED (Average Quality)

Double Carded 2c—4c., higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$0.25½	20s	$0.29
10s	.26	24s	.31
12s	.26½	26s	.32
16s	.27½	30s	.34

TWO-PLY SKEINS AND TUBES

8s-2	$0.26	20s-2	$0.29½
10s-2	.26½	24s-2	.31½
14s-2	.27½	30s-2	.34½
16s-2	.28	40s-2	.40½

SINGLE WARPS

10s	$0.26½	20s	$0.29½
14s	.27½	24s	.31½
16s	.28	30s	.34½

TWO-PLY WARPS

8s-2	$0.26½	20s-2	$0.30
10s-2	.27	24s-2	.32
14s-2	.28	30s-2	.35
16s-2	.28½	40s-2 ordin.	.41

HOSIERY CONES (Frame Spun)

8s	$0.26	18s	$0.28½
10s	.26½	20s	.29½
12s	.27	22s	.30½
14s	.27½	24s	.31½
16s	.28	26s	.32½

COMBED PEELER (Average Quality)
TWO-PLY—(Knitting Twist) Cones

20s-2	$0.38½	50s-2	$0.51
30s-2	.43	60s-2	.57
40s-2	.46½	80s-2	.76

WARPS, SKEINS AND CONES
TWO-PLY—(Warp Twist)

20s-2	$0.39	50s-2	$0.52
30s-2	.43½	60s-2	.58
36s-2	.46	70s-2	.68
40s-2	.47	80s-2	.78

SINGLES

14s	$0.34	38s	$0.43½
20s	.36½	40s	.44½
28s	.39	50s	.49½
30s	.40	60s	.56½

MERCERIZED CONES—(Combed, Ungassed)

30s-2	$0.54	60s-2	$0.70–$0.75
40s-2	.58	80s-2	.95– 1.00

Raw Silk

	13/15 White	20/22 White	20/22 Yellow
Special Grand, 85%	$1.48	$1.24	$1.18
Grand XX, 83%	1.35	1.20	1.15
Special Crack, 81%	1.29	1.17	1.12
Crack XX, 78%	1.25	1.15	1.10
Extra, Extra, 73%	1.23	1.12	1.08
Best Extra, 68%	1.20	....	....

RAW SILK EXCHANGE

	May 1	Apr. 2	For Month High	For Month Low	Net Change
June	1.20	1.33½	1.36½	1.19	—0.13½
July	1.22	1.33½	1.36½	1.22	—0.11½
Aug	1.22	1.33½	1.36	1.21½	—0.11½
Sept	1.22	1.34	1.36	1.21	—0.12
Oct	1.22	1.34½	1.36½	1.21	—0.12½
Nov	1.22½	1.34½	1.37	1.21	—0.12
Dec	1.22	....	....	....	....

Silk Yarns

Hosiery tram, 5thd. Japan, 85%	$2.12½
Hosiery tram, 5thd. crack XX, 78%	1.92½
60/2 spun silk	2.95

RAYON WASTE

Thread (for garnetting)	$0.17

Wool

OHIO, PENNSYLVANIA, ETC. (GREASE)

Fine delne	$0.32–$0.34	⅜ blood	$0.35–$0.37
Fine clothg	.28– .29	½ blood	.34– .36
½ blood	.33– .34		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.81 –$0.82
California, Northern	.70 – .75

MONTANA, IDAHO, WYOMING (CLEAN)

Staple fine	$0.83 –$0.85
Staple ½ bld.	.81 – .82
Fine and fine medium (original bag)	.79 – .81
⅜ blood	.76 – .78
¼ blood	.70 – .72

EASTERN SCOURED PULLINGS

A.A.	$0.90 –$0.95	B-Super	$0.69 –$0.75
A-Super	.81 – .83	C-Super	.66 – .68

CARPET WOOL (Nominal)

Aleppo (clean)	$0.20 –$0.23
Sining	.13 – .17
China filling (clean)	.12 – .16

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$1.15 –$1.17
Half-blood (60-62s)	1.12 – 1.13
Aver. ⅜ blood (56s)	1.03 – 1.05
½ blood (50s)	.93 – .95

NEW YORK TOP FUTURES

	Closed May 1	For Month High	For Month Low	Closed Apr. 2
June	91.50	102.20	92.00	101.10
July	92.00	102.40	92.50	101.20
Sept	93.00	103.00	93.50	101.40
Nov	94.00	103.30	93.70	101.60
Jan	94.40	103.80	93.90	101.80

TOPS—BRADFORD ENG. (May 1)

Fine (64s)	37 d	⅜ bld. (56s)	26½d
½ bld. (60s)	35½d	½ bld. (50s)	19 d

NOILS—BOSTON

Fine	$0.54 –$0.56	⅜ bld	$0.49 –$0.50
Half bld	.51 – .53	½ bld	.45 – .48

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s	$1.20 –$1.25	2-36s 58s	$1.55 –$1.60
2-30s 46s	1.30 – 1.35	2-40s 60s	1.60 – 1.65
2-30s mixes	1.70 – 1.75	2-50s 64s	1.75 – 1.80

ENGLISH SYSTEM KNITTING

2-20s 44s	$1.15 –$1.20	2-20s 60s	$1.40 –$1.45
2-20s 50s	1.20 – 1.25	2-20s 64s	1.45 – 1.50

FRENCH SYSTEM

1-26s 64s	$1.45 –$1.50	2-40s 64s, Zephyrs	$1.65 –$1.70
1-30s 64s, warp	1.50 – 1.60	2-50s 66s	1.80 – 1.85

Domestic Rayon (Skeins)

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.25	150	24–40	$0.52–$0.65
75	30	1.00	150	60	.57– .70
100	40	0.75–0.85	300	44	.55
125	36	.72			

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Denier	First Qual.
75	$1.05 –$1.10	150	$0.70
100	.90 – .95	175	.70

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.30	100	$0.95
60	1.20	120	0.80—0.85
75	1.10	150	0.78

CUPRAMMONIUM PROCESS (TWISTED)

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.60	100	75	$1.00
75	60	1.20	150	112	.90